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JATS: Journal Article Tag Suite, version 1.3

Abstract: The Journal Article Tag Suite provides a common XML format in which publishers and archives can exchange journal content. The JATS provides a set of XML elements and attributes for describing the textual and graphical content of journal articles as well as some non-article material such as letters, editorials, and book and product reviews.

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Foreword

(This foreword is not part of the ANSI/NISO Z39.96-2021 standard, *JATS: Journal Article Tag Suite*. It is included for information only.)

About This Standard

This Standard was first published in 2012 and revised in 2015, 2019, and 2021. This 2021 revision is JATS Version 1.3 of the Standard. In addition to the element and attribute descriptions, three journal article tag sets have been provided as part of NISO JATS.

This standard was originally based on the National Library of Medicine (NLM) Journal Archiving and Interchange Tag Suite, which was created by The National Center for Biotechnology Information [https://www.ncbi.nlm.nih.gov] (NCBI) of the National Library of Medicine (NLM) with the intent of providing a common format in which publishers and archives could exchange journal content. The NLM Tag Suite was developed as an update of a Document Type Definition (DTD) used by the NCBI/NLM PubMed Central project to archive life science journals from a variety of sources. Input and support from Harvard University Libraries, as well as support from The Andrew W. Mellon Foundation and collaboration with Inera, Inc. and Mulberry Technologies, Inc., allowed the scope of the project to be broadened and resulted in the NLM Journal Archiving and Interchange Tag Suite.

2021 Edition

The ANSI/NISO JATS: Journal Article Tag Suite Version 1.3 is a revision of ANSI/NISO JATS 1.2 Z39.96-2019, which was published in May 2019. Since NISO JATS 1.2 was released, there have been two non-normative Committee Draft versions: 1.3d1 in October 2019 and 1.3d2 in January 2021. The current version (ANSI/NISO Z39.96-2021) includes all of the changes made due to public comment on these Committee Draft versions.

The biggest changes have been the addition of metadata. Metadata to describe the XML artifact, as distinguished from the content of the article, has been added in a new metadata `<processing-meta>` wrap. In Processing Metadata, the XML file may describe the tag set (@tagset-family – JATS, BITS, or STS), base tagset (@base-tagset - JATS Archiving, JATS Publishing, JATS Authoring, BITS, or STS), table model (@table-model – xhtml or oasis), MathML version (@mathml-version – 2.0 or 3.0), and math representations (@math-representation mathml, tex, latex, images, plain-text) used in the document. In addition any restrictions or extensions to that model can be described `<restricted-by>` or `<extended-by>`; and any other metadata about the processing of the XML that the document creator may want to travel with the XML file can be provided in `<custom-meta-group>`.

Models for new information types have been added to the article model. Questions and Answers have been adopted from the Book Interchange Tag Set (BITS). These include `<question>`, `<answer-set>`, `<explanation>`, `<option>`, `<answer>`, `<question-preamble>`, `<question-wrap>`, and `<question-wrap-group>`. We have increased the opportunities for describing awards and grants, including adding `<award-id>` for a machine-actionable identifier, `<award-name>` for the natural language name, and `<award-desc>` for a description of an award or grant.

Several existing models have been extended. The `<xref>` element is allowed in many additional contexts to allow linking to `<supplementary-material>` which may describe the data behind a figure or table. `<subj-group>` is now allowed everywhere `<kwd-group>` is allowed. `<string-date>` is allowed almost everywhere `<date>` is allowed in document content. In addition, `<caption>` is allowed in `<disp-formula>`, and table cells for both XHTML-derived and OASIS-CALS tables may now include `<disp-quote>`, `<speech>`, `<statement>`, and `<verse-group>`.

In most places where the values of an attribute are constrained to a specified list that list, the value “other” has been added to the list and a new attribute @custom-type has been added. This mechanism allows the document creator to signal that there is a value but not one of the usual ones, and to provide any needed value.

Several attributes that were allowed in a few contexts are now allowed in additional places. The attribute @assigning-authority has been added to elements that contain identifiers, key words, or other pointers or values that may have been supplied or verified by someone beyond the creators of the document content. The vocabulary

attributes (@vocab, @vocab-term, @vocab-identifer, and @vocab-term-identifier) are added to <custom-meta> and <see-also>. @xml:lang is allowed on <issue-title>, <issue-title-group>, <issue-subtitle>, and <trans-title-group>.

For citations, the definitions of <source> and <part-title> have been refined to better enable citations to non-document resources. <chapter-title> has been deprecated, with the recommendation to use <part-title> where it was previously used.

Several changes have been made to accommodate articles in two or more languages. <block-alternatives> enables alternate versions of complex structures such as figures and their captions. To describe issues that may have subtitles and that may have title and subtitles in multiple languages, the <issue-title-group> is added, allowing paired <issue-title> and <issue-subtitle> as well as <trans-title-group>. To indicate the language of a document being referenced, the attribute @hreflang is now allowed on all elements that can have an @xlink:href; that is all elements that can reference other documents. <label> and <caption> are allowed to repeat on <fig>, <fig-group>, <table-wrap>, and <table-wrap-group> to accommodate places where a figure or table appears with labels and captions in multiple languages.

Comments on JATS made through the NISO comment form through October 2020 have been addressed by the JATS Standing Committee and incorporated in this update. All of the changes accepted are backward compatible with JATS 1.0, which means that any document that was valid according to JATS 1.0 will be valid according to JATS 1.3. Details of the Standing Committee recommendations on the comments submitted are available in: https://bit.ly/jats-changes-1-2-to-1-3.

Continuous Maintenance

JATS 1.0 was released by ANSI/NISO in August 2012. Since then, JATS has been in continuous maintenance mode; a full description of this ANSI-approved process is available at https://www.niso.org/standards-committees/jats/continuous-maintenance/. A Z39.96 Standing Committee was formed to review comments and suggested changes. The response of the Standing Committee to the comments is documented on the NISO website and Committee Drafts of the supplemental materials that reflect the changes are made available to the public.

Instructions for Submittal of Proposed Changes to ANSI/NISO Z39.96 Under Continuous Maintenance

If a provision of the standard is proposed for addition, deletion, or modification, the text of the provision must be submitted in writing. Comments or proposals for revision to any part of the standard may be submitted to NISO at any time. Submissions must be accompanied by the submitter's name, affiliation, telephone number, and email address. Comments may be submitted to NISO online via the NISO JATS page at https://www.niso.org/standards-committees/jats. The Z39-96 Standing Committee reviews suggestions at least twice a year.

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At the time NISO approved this standard, the following organizations were members of the NISO voting pool that approved this standard.

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American Physical Society (APS), Mark Doyle
American Psychological Association (APA), Kathleen Sheedy
American Society of Mechanical Engineers (ASME), Robert Wheeler
Annual Reviews, Tricia Miller
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NISO JATS: Journal Article Tag Suite

1 Purpose

The purpose of the NISO Journal Article Tag Suite (NISO JATS) standard is to define a suite of XML elements and attributes that describes the content and metadata of journal articles—including research and non-research articles, letters, editorials, book and product reviews—with the intent of providing a common format in which publishers and archives can exchange journal content.

The intent of the Tag Suite is to preserve the intellectual content of journals independent of the form in which that content was originally delivered. The Tag Suite enables an archive to capture structural and semantic components of existing material without modeling any particular sequence or textual format.

This standard also includes three implementations of the suite, called "Tag Sets". These tag sets are built from the elements and attributes defined in the Suite and are intended to provide models for archiving, publishing, and authoring journal article content.

2 Scope

The Journal Article Tag Suite defines elements and attributes that describe metadata and full content of scholarly journal articles. The Suite is not designed to describe magazines, books, or other publishing formats. While some structures in these formats may be similar to structures in journal articles, other structures may be distinctly different and may not be handled by existing elements and attributes defined in the Tag Suite.

The Tag Suite is the complete set of elements and attributes described in the standard. Along with these descriptions, the standard includes three article models or Tag Sets:

- The Journal Archive and Interchange Tag Set
- The Journal Publishing Tag Set
- The Article Authoring Tag Set

The Tag Suite has been designed to be extensible. Any of the tag sets may be extended or restricted to meet the needs of a given project. A new tag set that is a subset of one of the tag sets described in the Standard should be considered "conforming" to the standard. By definition, documents valid to such a conforming subset would also be valid according to the JATS model that the subset is based on.

New tag sets may be built from the elements and attributes in the Tag Suite. Tag sets that add structures (elements and/or attributes) to those defined in the standard (leading to documents not valid according to one of the models in the standard) should be called "based on JATS". Such tag sets are not considered "conforming" to the standard. Similarly, tag sets that extend or loosen the models described in the standard, such that documents valid to these new tag sets may not be valid according to one of the models in the standard, should be called "based on JATS". Such tag sets are also not considered "conforming" to the standard.

There are a number of items that have not been included in this standard:

1. Schemas that represent the three Tag Sets — The schemas (available in DTD, W3C Schema, and RELAX NG syntax) are included in the non-normative supporting information and can be found on the JATS site at the National Library of Medicine (NLM [https://jats.nlm.nih.gov]).
2. Detailed Usage Information — The NLM DTDs were supported by extensive usage information in the Tag Libraries. These Tag Libraries are still being produced to support the three NISO JATS tag sets. However, to simplify the updating process, these are included in the non-normative supporting information at the NLM JATS site:
    - Journal Archive and Interchange Tag Library (https://jats.nlm.nih.gov/archiving/tag-library/1.3/index.html)
    - Journal Publishing Tag Library (https://jats.nlm.nih.gov/publishing/tag-library/1.3/index.html)
    - Article Authoring Tag Library (https://jats.nlm.nih.gov/articleauthoring/tag-library/1.3/index.html)

3. Tagging examples are included in the three Tag Libraries listed above.
4. Details concerning MathML elements and OASIS XML Exchange table elements (based on the CALS table elements) are described in other standards. Specific instructions for using these elements should be gotten from the original standards referenced in Section 5, *References*. The default table model for the NISO JATS Tag Suite is based on, and designed to be converted easily to, the XHTML 1.1 table model. Details for the elements and attributes in the XHTML-inspired NISO JATS tables are provided in the individual Tag Set Tag Library documentation.

2.1 The Journal Archive and Interchange Tag Set

The Journal Archive and Interchange Tag Set provides a format in which publishers can deliver content to a wide range of archives, and into which archives can translate content from many publishers.

In addition to preserving the article metadata and content, this tag set enables preservation of observed content such as labels, numbers, symbols, and punctuation within bibliographic references.

2.2 The Journal Publishing Tag Set

The Journal Publishing Tag Set provides a more prescriptive format than the archiving format does. It is designed to provide a regularized data format that aids in web and print production. To achieve this goal, the Publishing Tag Set prescribes element sequences more often than the Archive and Interchange Tag Set, and does not offer as many options for tagging similar structures.

2.3 The Article Authoring Tag Set

The Article Authoring Tag Set provides a very prescriptive format in which content may be authored directly. Content control and element sequence is strictly enforced in the Authoring Tag Set. Generated content, such as list labels and symbols, are not allowed in this tag set.

3 Format of this Standard

This standard defines a set of structures (elements and attributes) that can be used to create a variety of Tag Sets for specific uses. In addition, it describes three specific Tag Sets. This document first defines all of the structures in the Tag Suite and then describes each of the three defined Tag Sets.

3.1 Description of the Tag Suite

Each element and attribute in the Tag Suite is described in tabular form in Section 7, *Tag Suite Components*.

Section 7.1, *Elements* provides a row for each element, in which appears:

- An indicator showing in which of the Tag Sets the element is used. Most elements are used in several of the Tag Sets, some are used in all of them.
- The XML Name (“generic identifier” or “tag”) for the element. This is the version of the element name that is used in the XML documents.
- An informational name for the element. This is often a longer or more formal name than the XML Name (Tag).
- The definition of the element.

Note that since the content models and available attributes of the elements may be different in each of the Tag Sets this information is not provided in Section 7, *Tag Suite Components*. It is provided in the sections about each of the Tag Sets (Section 8, Section 9, and Section 10).

Section 7.2, *Attributes* provides a row for each attribute, in which appears:

- An indicator showing in which of the Tag Sets the attribute is used.
- The XML Name of the attribute. This is the name of the attribute used in tagging XML documents.

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- An informational name for the attribute. This is often a longer or more formal name than the XML Name.
- The definition of the attribute.

Note that since the attribute value type and list of allowable or recommended values for the attributes may be different in each of the Tag Sets this information is not provided in Section 7, *Tag Suite Components*. It is provided in the sections about each of the Tag Sets (Section 8, Section 9, and Section 10).

3.2 Description of each Tag Set

In Section 8, Section 9, and Section 10, the specifics of each of the Tag Sets are defined, using the same format.

Following an Introduction, which describes the specific Tag Set, are entries for the elements and then attributes in the Tag Set.

Element entries contain:

- The XML Name (Tag) of the element, duplicated from Section 7, *Tag Suite Components*, e.g., `<bio>`.
- The informational name of the element, duplicated from Section 7, *Tag Suite Components*, e.g., **Biography**.
- The definition of the element, duplicated from Section 7, *Tag Suite Components*, e.g., "Biographical data concerning a contributor, usually an author or editor or the description of a collaboration. A `<bio>` concerns a person or group who wrote or otherwise contributed to the document."
- A list of all of the attributes the element may have in this Tag Set. In this documentation, attribute names will be prefixed with an at sign ("`@`"):
    - `@content-type` **Type of Content**
    - `@id` **Document Internal Identifier**
    - `@rid` **Reference to an Identifier**
    - `@specific-use` **Specific Use**
    - …
- An English-language description of the content model of the element in this Tag Set, for example:
    - The following in order:
        - `<sec-meta>` **Section Metadata**, zero or one
        - `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
        - `<title>` **Title**, zero or one
        - Any combination of:
            - `<address>` **Address/Contact Information**
            - `<alternatives>` **Alternatives For Processing**
            - `<array>` **Array (Simple Tabulation)**
            - …

Attribute entries contain:

- The XML Name of the attribute, duplicated from Section 7, *Tag Suite Components*.
- The informational name of the attribute, duplicated from Section 7, *Tag Suite Components*.
- The definition of the attribute, duplicated from Section 7, *Tag Suite Components*.
- Then, for each element or group of elements in the Tag Suite in which the attribute is identically defined, there is a block of usage information. Note that:
    - Some attributes are used on many elements.

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    - Some attributes are used in the same way on all elements in a Tag Set, but some may have different optionality or contents on different elements in the same Tag Set.
- For each usage block, the attribute entry contains:
    - A list of the elements for which this block of information is relevant.
    - A restriction statement, which may have any of the following values:
        - "@pppp is an optional attribute; there is no default. (where "`pppp`" is the XML name of an attribute)"
        - "@pppp is required; it must be provided if the element is used. (where "`pppp`" is the XML name of an attribute)"
    - A description of the allowed contents of the attribute, which will either be a description of the type of information allowed in the attribute or a table of allowed values and their meanings. If one of the allowed values is the default an additional column (Default) will appear in the table and an X will indicate which value is the default value for this attribute in this element usage block in this Tag Set.

4 Application Notes: Namespace for JATS Elements

There is no default namespace required for the elements and attributes in JATS. This has been done for two reasons:

1. The majority of the publishing consumers of JATS are not using namespaces except for included vocabularies; and
2. Introducing a default namespace would not be backward compatible and would break the majority of existing JATS applications.

Although a default namespace is not required for JATS, some users may wish to namespace JATS elements and attributes in their application of the standard.

If a namespace is to be applied, the namespace URI should be "`http://jats.nlm.nih.gov`", and the namespace prefix may be "`jats`".

Using a namespace with JATS will require a certain level of namespace and general XML sophistication. If it is done, it should be done in a manner that best facilitates interchange. The following items should be considered:

- The MathML namespace (and the OASIS Exchange table model namespace if appropriate) should be retained.
- When making HTML from JATS, the JATS table elements will need to be either stripped of the JATS namespace or given their own HTML namespace. JATS does not incorporate the XHTML 1.1 table model; it uses elements, attributes, and models inspired by and based on the XHTML 1.1 table model.

5 References

This standard references the following documents. When cited in the text of this standard, the referenced standard may be referred to by its number only or an abbreviated title. Where no date is supplied, the most current version of the standard should be used.

National Information Standards Organization (NISO) Recommended Practice RP-22-2015, Access License and Indicators, 5 January 2015, https://www.niso.org/publications/rp-22-2015-ali

Organization for the Advancement of Structured Information Standards (OASIS) Technical Memorandum TR 9901:1999, XML Exchange Table Model Document Type Definition, 29 September 1999, https://www.oasis-open.org/specs/tm9901.html

XHTML™ Modularization 1.1 - Second Edition, Section 5.6.2. Tables Module 27 March 2018, https://www.w3.org/TR/2018/SPSD-xhtml-modularization-20180327/

W3C Recommendation, Extensible Markup Language (XML) 1.0, 10 February 1998, https://www.w3.org/TR/1998/REC-xml-19980210

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W3C Recommendation, Mathematical Markup Language (MathML) Version 2.0 (Second Edition), 21 October 2003, https://www.w3.org/TR/2003/REC-MathML2-20031021

W3C Recommendation, Mathematical Markup Language (MathML) Version 3.0 (Second Edition), 10 April 2014, https://www.w3.org/TR/2014/REC-MathML3-20140410/

W3C Recommendation, Namespaces in XML 1.0, 14 January 1999, https://www.w3.org/TR/1999/REC-xml-names-19990114/

W3C Recommendation, XML Linking Language (XLink) Version 1.0, 27 June 2001, https://www.w3.org/TR/2001/REC-xlink-20010627/

W3C Recommendation, XML Schema Part 1: Structures Second Edition, 28 October 2004, https://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

6 Definitions

Term/Acronym	Definition
ANSI	American National Standards Institute. ANSI is a private nonprofit organization that oversees the development of voluntary consensus standards in the U.S.
ASCII	ASCII is a character-encoding scheme based on the English alphabet. It defines the encoding for 128 characters including A-Z, a-z, 0-9, some symbols, and some control characters. It is sometimes used to refer to "plain text", i.e., text without special characters or equations.
attribute (an XML term)	An attribute is a name-value pair associated with an XML element that modifies certain features of the element. Attributes hold facts about an element, such as which type of list (e.g., numbered, bulleted, or plain) is being requested when using the **List** `<list>` element. Each attribute has both a name (e.g., `@list-type`) and a value (e.g., "`bullet`").
container element	An XML term of art that indicates that one element has other elements inside it, in a parent/child or ancestor/descendent relationship.
Crossref	Crossref is an independent membership association appointed as an official DOI® Registration Agency for scholarly and professional publications.
document type (an XML term)	A class of documents that can be described with a single XML model, for example, journal articles.
DOI®	Digital Object Identifier. A DOI® is a character string used to identify an electronic document or other object persistently (over changes in time and ownership).
DTD (an XML term)	Document Type Definition. A DTD is a set of markup declarations that define a type of document in XML.
element (an XML term)	Elements are nouns, like "speech" and "speaker", that represent components of journal articles, the articles themselves, and accompanying metadata.
element content (an XML term)	The content of an element that contains only other elements. For example, the element for article metadata (`<article-meta>`) allows no text; it is a container element for the many metadata elements that describe an article.
emoticon	Icon, small graphic, or emoji used to depict emotion (for example, a "smiley face" to indicate happiness or laughter).
ftp	File Transfer Protocol. An Internet Engineering Task Force standard (RFC 959) that defines a protocol for transferring files between two hosts over a network.
glyph	A graphical element used to represent a character.
JATS	NISO Journal Article Tag Suite.
LaTeX	A document preparation system for the TeX typesetting program.
MathML	A specification of the World Wide Web Consortium (W3C) for describing mathematical notation and capturing both its structure and content.

Term/Acronym	Definition
metadata	Metadata are *data* about the data, such as bibliographic information. Metadata elements that *describe* an article (such as the name of the journal in which an article was published) are distinct from elements that contain the textual and graphical content of the article.
milestone	A milestone is a marker for the beginning or end of a non-hierarchically nested object, that is, a textual component that *cannot* be expressed in the normal, non-overlapping, tree structure of an XML document.
mixed content (an XML term)	The content of an element that may contain embedded elements as well as text (letters, numbers, and special characters). For example, a mixed content element may contain the highlighting elements such as bold and italic interspersed in the text.
PII	Publisher Item Identifier. A form of identifier based on the ISSN or ISBN.
pixel	In digital imaging, a pixel is a single point in a bitmap.
RELAX NG schema	A schema language for XML.
Schematron	A rule-based validation language used for making and testing assertions about an XML instance.
SICI	Serial Item and Contribution Identifier. An ANSI/NISO Z39.56 code to uniquely identify volumes, articles, or other parts of a periodical. A journal article may have more than one SICI, e.g., one for a print version and another for an electronic version.
STM	Scientific, Technical, and Medical. STM can be used to modify “publisher”, “journal”, “article”, etc.
tag set	A model for a particular document type, built from the XML elements and attributes defined in the Tag Suite. Many tag sets can be made from the elements and attributes of the full Tag Suite.
Tag Suite	All of the XML elements and attributes defined as part of this NISO standard. From this Suite of components, individual tag sets for a particular document type may be constructed.
TeX	A typesetting system popular for setting mathematics and physical sciences content.
Unicode®	Used to represent both the Unicode® Standard, which specifies the representation of text in modern software products and standards, and The Unicode Consortium, which is the organization responsible for developing and maintaining the Unicode® Standard.
Unicode Private Use Area	Blocks of characters that are officially not defined by the Unicode Standard but are reserved for an organization’s private use. Users must understand that characters within the private use area must be defined within a system and that they have no meaning outside of that system.
URI	Uniform Resource Identifier. An identifier (such as a URL) that may be used as a live link, typically naming a website, such as: `<uri>https://www.mulberrytech.com</uri>`.
wrapper element	An element that contains a series of elements that make up a whole unit; it acts as a single wrapper around all the elements that are part of a single logical component.
XML (Extensible Markup Language)	A specification of the World Wide Web Consortium (W3C) for creating custom markup languages that enable information systems to share structured information.
XML term	A term defined in the XML specification or commonly used by the XML community in the context of XML applications.
XSD schema	XML Schema Definition. A recommendation of the World Wide Web Consortium (W3C) that defines a language for creating XML Schemas (https://www.w3.org/XML/Schema).

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7 Tag Suite Components

7.1 Elements

The tag name is the shorter machine-readable name used in tagged documents, DTDs and schemas, and by software; for example, the tag name <p> is used for the element named “Paragraph”. Tag names are surrounded by angle brackets. Element names appear next to the tag names, in bold. Element names are explanatory or expanded names for the elements. For example, the element name “Last Page” is an expansion of the tag name <lpage>.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<abbrev> **Abbreviation or Acronym** Abbreviation, acronym, or emoticon used in the text of a document, possibly including an expansion of the acronym.
✓	✓		<abbrev-journal-title> **Abbreviated Journal Title** Short form of the title of the journal in which an article is published.
✓	✓	✓	<abstract> **Abstract** Summarized description of the content of a document or document component.
✓	✓	✓	<access-date> **Access Date for Cited Work** This element is deprecated, Avoid using it; use <date-in-citation>.
✓	✓	✓	<ack> **Acknowledgments** Textual material that names the parties who the author wishes to thank or recognize for their assistance in/contributions toward the article, for example, producing the work, funding the work, inspiring the work, or assisting in the research on which the work is based.
✓	✓	✓	<addr-line> **Address Line** One physical or logical line of an address.
✓	✓	✓	<address> **Address/Contact Information** Container element for contact information such as a postal address for a person or organization.
✓	✓	✓	<aff> **Affiliation** Name of an institution or organization (for example, university, corporation) with which a contributor is affiliated.
✓	✓	✓	<aff-alternatives> **Affiliation Alternatives** Container element to hold two or more representations of a single affiliation (for example, the name of a university in two or more languages such as both German and English).
✓	✓	✓	<ali:free_to_read> **Free to Read (NISO Access and License Indicators)** A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.
✓	✓	✓	<ali:license_ref> **License Reference (NISO and Access License Indicators)** A reference to a URI that carries the license terms specifying how a work may be used.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<alt-text> **Alternate Text Name (for a figure, etc.)** Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a figure or a graphic, nearly always used for Accessibility.
✓	✓	✓	<alt-title> **Alternate Title** An alternative or different version of the title of a work.
✓	✓	✓	<alternatives> **Alternatives For Processing** Container element used to hold a group of processing alternatives, for example, a single <graphic> that ships in several formats (tif, gif, and jpeg) or in different resolutions. This element is a physical grouping to contain multiple logically equivalent (substitutable) versions of the same information object. Typically these are processing alternatives, and the reader is expected to see only one version of the object.
✓	✓	✓	<annotation> **Annotation in a Citation** Commentary, summary, review, or similar non-bibliographic information concerning the cited work.
✓	✓	✓	<anonymous> **Anonymous** Placeholder for the name of a contributor where the actual name is unknown or not disclosed.
✓	✓	✓	<answer> **Answer to a Question** The correct answer to a question.
✓	✓	✓	<answer-set> **Answer Set** A series of answers, typically grouped for display purposes.
✓	✓	✓	<app> **Appendix** Additional material added to a document that typically follows the body of the document. This is ancillary or supporting material, not a direct continuation of the text of the document.
✓	✓	✓	<app-group> **Appendix Group** Container element for one or more appendices (<app> elements).
✓	✓	✓	<array> **Array (Simple Tabulation)** Tabular arrangement of text in the narrative flow of the document. Unlike a <table-wrap>, an array does not contain a label, title, caption, or table headings (column heads).
✓	✓	✓	<article> **Article** A journal article.
✓	✓		<article-categories> **Article Grouping Data** Container element for elements that may be used to group articles into related clusters, for example, by subject matter or by series.
✓	✓		<article-id> **Article Identifier** Unique external identifier assigned to an article.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<article-meta> **Article Metadata** Container element for information concerning the article that identifies or describes the article.
✓	✓	✓	<article-title> **Article Title** Full title of an article.
✓	✓	✓	<article-version> **Article Current Version Status or Number** Holds version information such as a version type, version status, version statement, or version number for the current article.
✓	✓		<article-version-alternatives> **Article Current Version Alternatives** A container element to hold multiple <article-version> elements, when a single article has more than one *simultaneous* version identifier and all should be recorded. For example, an article may be described with both a NISO-RP-8-2008 JAV version phrase and a publisher or aggregator version number.
✓	✓	✓	<attrib> **Attribution** Container element for information concerning the origin of an extract, figure, display quote, table, verse, or similar element.
✓	✓	✓	<author-comment> **Author Comment** Textual material associated with a contributor.
✓	✓		<author-notes> **Author Note Group** Container element for notes about the article's contributors.
✓	✓	✓	<award-desc> **Award Description** Descriptive text associated with an award ID or award name, which may express, for example, the type of award ("Post-doc fellowship", "operating grant"), something about the award ("statutory funds"), or a description of the award ("a research grant for developing innovative cancer treatments").
✓	✓	✓	<award-group> **Award Group** Container element for information concerning one award of the possibly multiple sources of support for this work (or the research on which the work was based).
✓	✓	✓	<award-id> **Award Identifier** Unique identifier assigned to an award, contract, or grant.
✓	✓	✓	<award-name> **Award Name** Some awards are known by specific names, for historical reasons or to honor a funder, mentor, or researcher. This element holds the text of such a name, such as the "Marie Curie Career Integration Grant", the "Schleswig-Holstein Excellence Chair" or the "Wolfson Merit Award".
✓	✓	✓	<back> **Back Matter** Material published with an article but following the narrative flow.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<bio> **Biography** Biographical data concerning a contributor or the description of a collaboration.
✓	✓		<block-alternatives> **Block-level Alternatives** Container element to hold block-level processing alternatives, such as the same table or figure in two languages.
✓	✓	✓	<body> **Body of the Document** Main textual portion of the document that conveys the narrative content.
✓	✓	✓	<bold> **Bold** Used to mark text that should appear in bold face.
✓	✓	✓	<boxed-text> **Boxed Text** Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).
✓	✓	✓	<break> **Line Break** An explicit line break in the text.
✓	✓	✓	<caption> **Caption of a Figure, Table, etc.** Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).
✓	✓	✓	<chapter-title> **Chapter Title in a Citation** Title of a cited book chapter. This element is deprecated in JATS. Avoid using it; use <part-title> instead.
✓	✓	✓	<chem-struct> **Chemical Structure (Display)** Chemical expression, reaction, equation, etc. that is set apart within the text.
✓	✓	✓	<chem-struct-wrap> **Chemical Structure Wrapper** Wrapper element for a chemical expression, reaction, equation, etc. that is set apart from the text; includes any number, label, or caption that accompanies the chemical expression.
✓	✓	✓	<citation-alternatives> **Citation Alternatives** Holds alternative versions of a single citation, for example, the same citation in multiple languages or a single citation tagged as both a <mixed-citation> complete with punctuation and spacing preserved and as an <element-citation> with punctuation and spacing removed.
✓	✓	✓	<city> **City** The name of a city.
✓	✓	✓	<code> **Code** A container element for technical content such as programming language code, pseudo-code, schemas, or a markup fragment.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<col> **Table Column (NISO JATS table model)** The description of one column of a table, used to provide attributes relating to a specific column. If there is no <col> element these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHTML col element.)
✓	✓	✓	<colgroup> **Table Column Group (NISO JATS table model)** A container element to hold column descriptions (element <col>) for a group of columns in a table —or for all of the columns in the table if there is only one <colgroup> in the table. Attributes on the <colgroup> apply to all of the columns in the group unless over-ridden on the <col>. (This element is based on and intended to be converted easily to the XHTML colgroup element.)
✓	✓	✓	<collab> **Collaborative (Group) Author** Group of contributors credited under a single name, such as an organization credited as a contributor.
✓	✓	✓	<collab-alternatives> **Collaboration Alternatives** Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.
✓	✓	✓	<comment> **Comment in a Citation** Container element for unstructured text within a bibliographic reference.
✓	✓	✓	<compound-kwd> **Compound Keyword** Wrapper element for multi-part keywords (for example, a code and its meaning).
✓	✓	✓	<compound-kwd-part> **Compound Keyword Part** Individual component of a multi-part keyword (for example, a code, the code's meaning).
✓	✓	✓	<compound-subject> **Compound Subject Name** Wrapper element to hold all the parts of a multi-part subject (for example, a subject term and the code representing that term).
✓	✓	✓	<compound-subject-part> **Compound Subject Part Name** Individual component of a multi-part subject (for example, subject term, code for the term).
✓	✓	✓	<conf-acronym> **Conference Acronym** Short, popular, or jargon name for a conference (for example, "Extreme" for Extreme Markup Languages, "SIGGRAPH" for Special Interest Group on Computer Graphics).
✓	✓	✓	<conf-date> **Conference Date** Date(s) on which a conference was held.
✓	✓	✓	<conf-loc> **Conference Location** Physical location(s) of a conference (for example, city, country, campus, organization location).
✓	✓	✓	<conf-name> **Conference Name** Full name of a conference, including any qualifiers such as "43rd Annual".

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<conf-num> **Conference Number** Sequential number of a conference.
✓	✓	✓	<conf-sponsor> **Conference Sponsor** One organization identified as a sponsor of a conference.
✓	✓	✓	<conf-theme> **Conference Theme** Theme, slogan, or major subject area of a conference.
✓	✓	✓	<conference> **Conference Information** Container element to contain information about a single conference and its proceedings.
✓	✓	✓	<contrib> **Contributor** Container element for information about a single author, editor, or other contributor to the article.
✓	✓	✓	<contrib-group> **Contributor Group** Container element for one or more contributors and information about those contributors.
✓	✓	✓	<contrib-id> **Contributor Identifier** One identifier for a person such as a contributor or principal investigator. This element may hold, for example, an ORCID, a trusted publisher's identifier, a JST identifier (Japan Science and Technology Agency), an arXiv Author ID, or a Scopus Author ID.
✓	✓	✓	<contributed-resource-group> **Contributed Resource Group** Container element for information concerning non-financial support for the research reported in the work (typically an article). Such support may include facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).
✓	✓	✓	<copyright-holder> **Copyright Holder** Name of the organizational or personal entity that holds a copyright.
✓	✓	✓	<copyright-statement> **Copyright Statement** Copyright notice or statement, suitable for printing or display.
✓	✓	✓	<copyright-year> **Copyright Year** The year of copyright.
✓	✓		<corresp> **Correspondence Information** Information concerning how and with whom to correspond about an article.
✓	✓		<count> **Count** Generic count element to count anything a NISO JATS user organization may wish to count in a document. The @count-type attribute will name what is being counted (such as footnotes, tables, sections, contributors, images, etc.) The @count attribute will state how many of the objects are in the document.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<country> **Country: in an Address** Country name used within an address.
✓	✓		<counts> **Counts** Container element for counts of a document (for example, the number of tables, number of figures, number of words).
✓	✓	✓	<custom-meta> **Custom Metadata** Wrapper element for a single piece of metadata not otherwise defined in the Tag Suite.
✓	✓	✓	<custom-meta-group> **Custom Metadata Group** Container element for metadata not otherwise defined in the Tag Suite.
✓	✓	✓	<data-title> **Data Title** The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.
✓	✓	✓	<date> **Date** Container element for the parts of a single calendar date.
✓	✓	✓	<date-in-citation> **Date within a Citation** Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.
✓	✓	✓	<day> **Day** Numeric, two-digit value of the day of the month.
✓	✓	✓	<def> **Definition List: Definition** Definition, explanation, or expansion of a word, phrase, or abbreviation.
✓	✓	✓	<def-head> **Definition List: Definition Head** Heading over the second column (the definition column) of a definition list (two-part list).
✓	✓	✓	<def-item> **Definition List: Definition Item** One item in a definition (two-part) list.
✓	✓	✓	<def-list> **Definition List** List in which each item consists of two parts: 1) a word, phrase, term, graphic, chemical structure, or equation, that is paired with 2) one or more descriptions, discussions, explanations, or definitions of it.
✓	✓	✓	<degrees> **Degree(s)** Academic titles or professional certifications displayed following a personal name (for example, “MD”, “PhD”).

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<disp-formula> **Formula, Display** Mathematical equation, expression, or formula that is to be displayed as a block (callout) within the narrative flow.
✓	✓	✓	<disp-formula-group> **Formula, Display Group** Container element for equations or other mathematical expressions.
✓	✓	✓	<disp-quote> **Quote, Displayed** Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.
✓	✓	✓	<edition> **Edition Statement, Cited** The full edition statement for a cited or referenced publication.
✓	✓	✓	<element-citation> **Element Citation** Bibliographic description of a work. Includes bibliographic reference elements only. Does not include untagged text, spacing, or punctuation.
✓	✓	✓	<elocation-id> **Electronic Location Identifier** Bibliographic identifier for a document that does not have traditional printed page numbers.
✓	✓	✓	<email> **Email Address** Electronic mail address of a person or institution.
✓	✓		<equation-count> **Equation Count** Number of <disp-formula> elements that appear in the document.
✓	✓	✓	<era> **Era of Time** A specified range of years that is named for an event, political ruler, or characterization of the timespan.
✓	✓	✓	<etal> **Et Al.** Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.
✓	✓		<event> **Event in Publishing History** An event in the publication history of an article, for example, reprinting or publishing a revised online edition. This element may contain information such as a description of the event (<event-desc>), copyright information for a reprint or edition, a publication date, a URI for the article, etc.
✓	✓		<event-desc> **Event Description** This is a description of an event in the publication history of an article, for example, reprinting or publishing a revised online edition. This text field may be as simple a few words or as complex as a narrative with embedded markup.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<explanation> **Explanation** An explanation of why an answer is correct, or why an option is or is not correct. An explanation may provide additional information about a question, point to text that may provide useful information, or describe why one answer might be confused with another.
✓	✓	✓	<ext-link> **External Link** Link to an external file or resource.
✓	✓	✓	<extended-by> **Extended-by Model** Identification of a JATS extension that the document claims to be following.
✓	✓	✓	<fax> **Fax Number: in an Address** Portion of an address that contains a fax number.
✓	✓	✓	<fig> **Figure** Block of graphical or textual material that is identified as a figure, usually bearing a caption and a label such as “Figure 3.” or “Figure”.
✓	✓		<fig-count> **Figure Count** Number of <fig> elements that appear in the document.
✓	✓		<fig-group> **Figure Group** Container element for figures that are to be displayed together.
✓	✓	✓	<fixed-case> **Fixed Case** Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.
✓	✓		<floats-group> **Floating Element Group** Container element for floating objects (figures, tables, text boxes, graphics, etc.) that occur within an article. Occurs outside of the narrative flow of the article.
✓	✓	✓	<fn> **Footnote** Additional information tied to a particular location in the text. This material is not considered to be part of the body of the text, but is a note used instead of, in addition to, as a source for, or as a commentary on either some body text or on an element in the metadata such as an author.
✓	✓	✓	<fn-group> **Footnote Group** Container element for footnotes that appear at the end of the document.
✓	✓	✓	<fpage> **First Page** Page number on which a document starts.
✓	✓	✓	<front> **Front Matter** Container element for the metadata of an article and the journal in which it was published.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<front-stub> **Stub Front Metadata** Reduced set of metadata for use in <sub-article> and <response>, both of which are contained within an article. Any metadata not explicitly tagged in the front-stub is inherited from <article-meta> in the enclosing article.
✓	✓	✓	<funding-group> **Funding Group** Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.
✓	✓	✓	<funding-source> **Funding Source** Agency or organization that funded the research on which a work was based.
✓	✓	✓	<funding-statement> **Funding Statement** Displayable prose statement that describes the funding for the research on which a work was based.
✓	✓	✓	<given-names> **Given (First) Names** All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.
✓	✓	✓	<glossary> **Glossary Elements List** Section whose content is typically a list of terms and definitions, usually tagged as one or more two-part lists called <def-list>. Typically part of the back matter of a document.
✓	✓	✓	<glyph-data> **Glyph Data for a Private Character** Most characters in an XML document can be expressed as regular Unicode® codes. Characters not in the Unicode Standard tables have traditionally been expressed as explicit font calls (non-portable), created as inline graphics, or defined in one of the Unicode private-use areas where users may define their own characters. The <glyph-data> element is used when there is known to be no font available to render a private-use character. This element provides information on the actual glyph that is associated with the private-use character.
✓	✓	✓	<glyph-ref> **Glyph Reference for a Private Character** Once a private character has been declared using a <glyph-data> element, the character need not be defined with the same <glyph-data> element every time it is used. The character can be reused by using the <glyph-ref> element to point to the full <glyph-data> element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <glyph-ref> element to point to the @id attribute of an existing <glyph-data> element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.
✓	✓	✓	<gov> **Government Report, Cited** Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.
✓	✓	✓	<graphic> **Graphic** Description of and pointer to an external file containing a still image.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<history> **History: Document History** Container element for dates related to the processing history of the document (for example, received date, accepted date).
✓	✓	✓	<hr> **Horizontal Rule** An explicit horizontal rule.
✓	✓	✓	<index-term> **Index Term** The index term to be embedded into the narrative of an article so that an Index can be created programmatically.
✓	✓	✓	<index-term-range-end> **Index Term Range End** The marker for the end of a range when an index term embedded into the narrative of a document is the start of a range.
✓	✓	✓	<inline-formula> **Formula, Inline** Mathematical equation, expression, or formula that is to be displayed inline. The mathematics itself can be expressed as ASCII characters, as a graphic, or using TeX, LaTeX, or MathML mathematics expressions.
✓	✓	✓	<inline-graphic> **Graphic, Inline** Description of and pointer to an external graphic that is displayed or set in the same line as the text.
✓	✓	✓	<inline-media> **Inline Media Object** Description of and pointer to an external file that holds an inline media object (for example, a pronunciation file for a word or character).
✓	✓	✓	<inline-supplementary-material> **Inline Supplementary Material Metadata** Inline description of, and possibly a pointer to, an external file that provides supplementary information for the document.
✓	✓	✓	<institution> **Institution Name: in an Address** Name of an institution or organization (for example, a university or corporation).
✓	✓	✓	<institution-id> **Institution Identifier** A externally defined institutional identifier, for example, a publisher-defined identifier or one defined by an ISO standard, such as “ISNI” or “ISLL”.
✓	✓	✓	<institution-wrap> **Institution Wrapper** A wrapper element to hold both the name of an institution (<institution>) and any identifiers for that institution (<institution-id>), for example, an INSI or Ringgold ID.
✓	✓	✓	<isbn> **ISBN** International Standard Book Number, the international code for identifying a particular product form or edition of a publication, typically a monographic publication.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<issn> **ISSN International Standard Serial Number** Standard code assigned by the ISSN network for the unique identification of serials and other continuing resources in a defined medium version.
✓	✓	✓	<issn-l> **ISSN-L (Linking ISSN)** An ISSN designated by an ISSN Centre to group together the different media versions of a work. Since a single ISSN-L is assigned no matter how many media formats of a work there are, the ISSN-L can be used to link among the different media versions of the work or continuing resource, for example, both the printed and online versions of the work.
✓	✓	✓	<issue> **Issue Number** Issue number of a journal, or in rare instances, a book.
✓	✓	✓	<issue-id> **Issue Identifier** Name or identifier of an entire journal issue (for example, a DOI).
✓	✓	✓	<issue-part> **Issue Part** Number, name, or other identifier of a sub-part of a journal issue.
✓	✓		<issue-sponsor> **Issue Sponsor** Sponsor for an issue of the journal.
✓	✓		<issue-subtitle> **Issue Subtitle** Records a subtitle for an issue of the journal.
✓	✓	✓	<issue-title> **Issue Title** Theme or special title for a journal issue.
✓	✓		<issue-title-group> **Issue Title Group** Grouping element to associate issue title metadata (such as the issue title and subtitle) for a single issue.
✓	✓	✓	<italic> **Italic** Used to mark text that should appear in an italic or slanted font.
✓	✓	✓	<journal-id> **Journal Identifier** Short code or abbreviation used as an identifier for a journal.
✓	✓		<journal-meta> **Journal Metadata** Container element for metadata about the journal in which the article was published.
✓	✓		<journal-subtitle> **Journal Subtitle (Full)** Full subtitle of the journal in which the article was published.
✓	✓		<journal-title> **Journal Title (Full)** Full title of the journal in which the article was published.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<journal-title-group> **Journal Title Group** Container element for the titles of the journal in which the article was published.
✓	✓	✓	<kwd> **Keyword** A keyword is a finding aid used to record one subject term, key phrase, abbreviation, indexing word, taxonomic structure, or other expression that is associated with a whole structure (such as an article). Keywords can be used for identification, searching, and indexing purposes. A keyword element (<kwd>) may contain a repetition of words found in the structure, or it may contain broader terms, narrower terms, related terms, or taxonomic identifiers used to find the structure in a search or provide semantic classification of the text by mapping a specific structure to a taxonomy.
✓	✓	✓	<kwd-group> **Keyword Group** Container element for one set of keywords (such as <kwd>s, <nested-kwd>s, or <compound-kwd>s) used to describe a document.
✓	✓	✓	<label> **Label (of an Equation, Figure, Reference, etc.)** Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).
✓	✓	✓	<license> **License Information** Set of conditions under which the content may be used, accessed, and distributed.
✓	✓	✓	<license-p> **License Paragraph** Paragraph of text within the description of a <license>.
✓	✓	✓	<list> **List** Sequence of two or more items, which may or may not be ordered.
✓	✓	✓	<list-item> **List Item** Single item (one entry) in a list of items.
✓	✓	✓	<long-desc> **Long Description** Full description or summary of the content of an object such as a graphic, table, figure, or text box, typically used to make the object accessible.
✓	✓	✓	<lpage> **Last Page** Page number on which a document ends.
✓	✓	✓	<media> **Media Object** Description of and pointer to an external file that holds a media object (for example, an animation, a movie).
✓	✓	✓	<meta-name> **Metadata Data Name for Custom Metadata** Name of a single piece of metadata not otherwise defined in the Tag Suite.
✓	✓	✓	<meta-value> **Metadata Data Value for Custom Metadata** Value of a single piece of metadata not otherwise defined in the Tag Suite.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<milestone-end> **Milestone End** End of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).
✓	✓		<milestone-start> **Milestone Start** Start of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).
✓	✓	✓	<mixed-citation> **Mixed Citation** Bibliographic description of a work. Includes a combination of bibliographic reference elements and untagged text. Spacing and punctuation are preserved.
✓	✓	✓	<mml:math> **Math (MathML Tag Set)** Use documentation for the Mathematical Markup Language (MathML) Tag Set (https://www.w3.org/TR/MathML3/ or https://www.w3.org/TR/MathML2/).
✓	✓	✓	<monospace> **Monospace Text (Typewriter Text)** Used to mark text that should appear in a non-proportional font, such as courier.
✓	✓	✓	<month> **Month** Names one of the months of the year, such as "July" or "07".
✓	✓	✓	<name> **Name of Person** Container element for the component elements of personal names, such as a <surname>.
✓	✓	✓	<name-alternatives> **Name Alternatives** Container element for more than one version of a personal name, the element <name> (for example, the name written in both Japanese Kana characters and the Latin alphabet).
✓	✓	✓	<named-content> **Named Special (Subject) Content** Word or phrase whose content/subject matter has distinct semantics or content-related significance.
✓	✓	✓	<nested-kwd> **Nested Keyword** A hierarchically-structured keyword, such as a keywords from a controlled vocabulary.
✓	✓	✓	<nlm-citation> **NLM Citation** This element is deprecated. Avoid using it; use <element-citation>.
✓	✓		<note> **Note in a Reference List** Non-citation content inside a bibliographic reference list.
✓	✓		<notes> **Notes** Section-like container element for one or more notes that are not part of the narrative flow (for example, note added in proof, dedication).

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<object-id> **Object Identifier** Unique identifier (such as a DOI or URI) for a component *within* an article (for example, for a figure or a table).
✓	✓	✓	<on-behalf-of> **On Behalf of** When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work "on behalf of" that organization or group, and this element holds the name of the organization or group.
✓	✓	✓	<open-access> **Open Access** Open access provisions that apply to a work or the funding information that provided the open access provisions.
✓	✓	✓	<option> **Answer Option (for a question)** One of the possible answer choices for a multiple-choice question.
✓	✓	✓	<overline> **Overline** Used to mark text that should appear with a horizontal line above each character.
✓			<overline-end> **Overline End** Milestone indicating the end of overline emphasis.
✓			<overline-start> **Overline Start** Milestone indicating the beginning of overline emphasis.
✓	✓	✓	<p> **Paragraph** Textual unit or block; a textual paragraph.
✓	✓	✓	<page-count> **Page Count** Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.
✓	✓	✓	<page-range> **Page Ranges** Text describing discontinuous pagination (for example, 8-11, 14-19, 40).
✓	✓	✓	<part-title> **Part Title in a Citation** Title of a *portion* of a larger resource (for example, a chapter in a book, module in a course, episode of a podcast or television series) described in a bibliographic reference.
✓	✓	✓	<patent> **Patent Number, Cited** Identification information for a patent in a bibliographic reference or product.
✓	✓	✓	<permissions> **Permissions** Container element for copyright and license information for the entire article or for the object which contains the <permissions> element.
✓	✓	✓	<person-group> **Person Group for a Cited Publication** Container element for one or more contributors in a bibliographic reference.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<phone> **Phone Number: in an Address** Portion of an address which contains a phone number.
✓	✓	✓	<postal-code> **Postal Code** A postal number such as a zip-code or postal code used to address physical mail.
✓	✓	✓	<prefix> **Prefix** Honorifics or other qualifiers that usually precede a person's name (for example, Professor, Rev., President, Senator, Dr., Sir, The Honorable).
✓	✓	✓	<preformat> **Preformatted Text** Text in which spaces, tabs, and line feeds must be preserved. Content is typically displayed in monofont to preserve character alignment.
✓	✓	✓	<price> **Price** Sale price or licensing fees of a work.
✓	✓	✓	<principal-award-recipient> **Principal Award Recipient** Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).
✓	✓	✓	<principal-investigator> **Principal Investigator** Individual(s) responsible for the intellectual content of the work reported in the document.
✓	✓	✓	<private-char> **Private Character (Custom or Unicode)** Custom character supplied by a publisher, or a custom character from the Unicode private-use area, for which a bitmap or other representation of the glyph is included in or with the XML. The glyph may be represented as an inline graphic, an explicit bitmap glyph, or a reference to a previously defined character.
✓	✓	✓	<processing-meta> **Processing Metadata** Optional container element, used to hold the processing metadata elements, which describe processing information descriptive of the XML-tagged document (document instance).
✓	✓	✓	<product> **Product Information** Container element for the metadata concerning one product (for example, a book, software package, website, or hardware component) discussed in an article.
✓	✓		<pub-date> **Publication Date** Container element for the parts of a single date associated with an article's publication (for example, date preprint was released, date article was published in print).
✓	✓		<pub-date-not-available> **Publication Date Not Available Flag** An empty element which signals that the publication date (<pub-date>) is not available. This does *not* mean the article is unpublished, merely that the publication date cannot be supplied.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<pub-history> **Publication History** Used as a container for events related to the processing history of the document, such as the date a manuscript was submitted, the reprint date for an article, etc.
✓	✓	✓	<pub-id> **Publication Identifier for a Cited Publication** Identifier of a publication in a bibliographic reference or product description.
✓	✓		<publisher> **Publisher** Container element for information about the person, company, or other entity that published a work.
✓	✓	✓	<publisher-loc> **Publisher's Location** Place of publication, usually a city, such as New York or London.
✓	✓	✓	<publisher-name> **Publisher's Name** Name of the person, company, or other entity that published a work.
✓	✓	✓	<question> **Question** A question (request for an answer) used in the text or as part of a quiz, exam, etc.
✓	✓	✓	<question-preamble> **Question Preamble** An element containing setup/preamble information that is shared by several questions. For example, a <question-preamble> might contain a diagram of a triangle (with several labeled parts) that is shared by questions such as "What is angle 'a'?", or "Given only the information in the diagram, can you calculate the length of the line from 'b' to 'd'?".
✓	✓	✓	<question-wrap> **Question Wrapper** Wrapper element used to contain a question and its answers and/or explanations concerning the question.
✓	✓	✓	<question-wrap-group> **Question Wrapper Group** A container element used to hold a group of <question-wrap> elements, for example, when all the questions share a common preamble (setup).
✓	✓	✓	<rb> **Ruby Base Text** This element is one half of a Ruby annotation (<ruby>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (<rt>) should be applied.
✓	✓	✓	<ref> **Reference Item** One item in a bibliographic list.
✓	✓		<ref-count> **Reference Count** Number of references or citations that appear in a bibliographic reference list.
✓	✓	✓	<ref-list> **Reference List (Bibliographic)** List of bibliographic references for a document or document component.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<related-article> **Related Article Information** Description of a journal article related to the content but published separately. May include a link to the related article.
✓	✓	✓	<related-object> **Related Object Information** Description of an object (for example, book, book chapter, figure, or table) related to the article content but published separately. May include a link to the related object.
✓	✓	✓	<resource-group> **Resource Group** Container element to hold the descriptions of specific resources supplied in the non-financial support of the work described in this article.
✓	✓	✓	<resource-id> **Resource Identifier** An external, ideally machine-readable, identifier such as a Research Resource Identifier, for a specific resource provided in support of the work described in this article.
✓	✓	✓	<resource-name> **Resource Name** A displayable name of or description for a specific resource provided in support of the work described in this article.
✓	✓	✓	<resource-wrap> **Resource Wrap** A wrapper element to hold together the name of a resource (<resource-name>) and one or more external identifiers for that resource (<resource-id>) such as a Research Resource Identifier.
✓	✓		<response> **Response** Reply, response, or commentary concerning the journal article. In the typical case, the response is included in the same XML package as the original article, attached at the end of the article proper. Metadata that differs from that of the original article (for example, title, author) may be captured using the <front-stub> element; if the <front-stub> element is used, any metadata not specifically tagged is inherited from the original article.
✓	✓	✓	<restricted-by> **Restricted-by Model** Identification of one of the guidelines or other restrictions (such as a tighter subset schema) the document claims to be following.
✓	✓	✓	<role> **Role or Function Title of Contributor** Title or role of a contributor to a work (for example, author, principle investigator, illustrator, research associate, conceptualization).
✓	✓	✓	<roman> **Roman** Used to mark text that should remain in roman script no matter what style the surrounding text takes on.
✓			<rp> **Ruby Parenthesis** Used to provide spacing or parenthesis to surround Ruby Text (<rt>), for older systems that do not handle Ruby formatting properly.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<rt> **Ruby Textual Annotation** This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be as small as a single character.
✓	✓	✓	<ruby> **Ruby Annotation Wrapper** An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains some of the document narrative text (inside a Ruby Base <rb> element) and applies/associates a Ruby Textual Annotation (inside an <rt> element to that base text.
✓	✓	✓	<sans-serif> **Sans Serif** Used to mark text that should appear in a sans-serif font.
✓	✓	✓	<sc> **Small Caps** Used to mark text that should appear in a font that creates smaller capital letters.
✓	✓	✓	<season> **Season** Season of publication (for example, Spring, Third Quarter).
✓	✓	✓	<sec> **Section** Headed group of material; the basic structural unit of the body of a document.
✓	✓	✓	<sec-meta> **Section Metadata** Container element for section-level metadata that is different from the parent document.
✓	✓	✓	<see> **See** Used in an embedded index entry to hold preferred terms that make “See” references in a generated index.
✓	✓	✓	<see-also> **See-Also** Used in an embedded index entry to hold preferred terms that make “See Also” references in a generated index.
✓	✓	✓	<self-uri> **URI for This Same Article Online** URI for another version of a document. This element may be used when the document is available in multiple forms (for example, a printed article and in its expanded version with additional graphics available online).
✓	✓	✓	<series> **Series** Series information about a journal or book in a bibliographic reference or product.
✓	✓		<series-text> **Series Text: Header Text to Describe** Textual description of the series of articles that is named in a <series-title> element.
✓	✓		<series-title> **Series Title** Title of the journal series (bibliographic) or series of articles internal to one issue of a journal.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<sig> **Signature** One contributor's signature and associated material (such as a text restatement of the affiliation) inside a signature block.
✓	✓		<sig-block> **Signature Block** Area of text and/or graphical material placed at the end of the body of a document or document component to hold the graphical signature or description of the person(s) responsible for or attesting to the content.
✓	✓	✓	<size> **Size** Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).
✓	✓	✓	<source> **Source** Title of the resource (for example, journal, book, podcast, conference proceedings, radio or TV show) that contains (is the source of) the material being cited in a bibliographic reference or product. In the case of a resource that has titles at multiple hierarchical levels, this is the title of the largest titled resource (e.g., the TV show name and not the episode title).
✓	✓	✓	<speaker> **Speaker** One who utters one segment of a speech or dialog.
✓	✓	✓	<speech> **Speech** One exchange (a single speech) in a real or imaginary conversation between two or more entities.
✓	✓	✓	<state> **State or Province** The name of a state, province, territory, or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, district, or parish. The names for such a unit vary geopolitically.
✓	✓	✓	<statement> **Statement, Formal** Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.
✓	✓	✓	<std> **Standard, Cited** Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.
✓	✓	✓	<std-organization> **Standards Organization** The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.
✓	✓	✓	<strike> **Strike Through** Used to mark text that should appear with a line through it so as to appear struck out.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓			<string-conf> **String Conference Name** Sequence and flow of an extended conference name (for example, “The Learned Society’s Conference on What’s Hot at the University of Wherever on 21–27 July 2011”).
✓	✓	✓	<string-date> **Date as a String** Date represented as text.
✓	✓	✓	<string-name> **Name of Person (Unstructured)** Container element for personal names captured with mixed-content where the order of the name components is not enforced.
✓	✓	✓	<styled-content> **Styled Special (Subject) Content** Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace, or any of the other emphasis elements; and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.
✓	✓	✓	<sub> **Subscript** Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.
✓	✓		<sub-article> **Sub-article** An article that is completely contained inside another article.
✓	✓	✓	<subj-group> **Subject Group** Container element for the subject matter designations describing a document’s content or a component document’s content. Subjects are used to organize documents into groupings (potentially hierarchical groupings) for display or print.
✓	✓	✓	<subject> **Subject Grouping Name** Name of one subject or topic used to describe an article. Such topics and groupings of topics are typically used to provide headings for groups of documents or document components in a printed, or online, generated Table of Contents.
✓	✓	✓	<subtitle> **Document Subtitle** Subordinate part of a title for a document or document component.
✓	✓	✓	<suffix> **Suffix** Qualifiers that follow a person’s name (for example, Sr., Jr., III, 3rd).
✓	✓	✓	<sup> **Superscript** Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.
✓	✓	✓	<supplement> **Supplement Information** Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<supplementary-material> **Supplementary Material Metadata** Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.
✓	✓	✓	<support-description> **Support Description** A displayable prose statement that describes some non-financial support given for the research on which a work was based.
✓	✓	✓	<support-group> **Support Group** Container element for information concerning both funding and non-monetary support for the research reported in the work (typically an article). This includes both monetary awards, grants, investigators, etc. and also facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).
✓	✓	✓	<support-source> **Support Source** Agency or organization (such as a foundation, corporation, or an educational institution) that provided non-monetary support (such as facilities or data) in support of the research on which a work was based.
✓	✓	✓	<surname> **Surname** Surname of a person.
✓	✓	✓	<table> **Table (NISO JATS table model)** The rows and columns part of a full table. (This element is based on and intended to be converted easily to the XHTML table element.)
✓	✓		<table-count> **Table Count** Number of <table-wrap> elements that appear in the document.
✓	✓	✓	<table-wrap> **Table Wrapper** Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.
✓	✓	✓	<table-wrap-foot> **Table Wrapper Footer** Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.
✓	✓		<table-wrap-group> **Table Wrapper Group** Container element for tables (<table-wrap> elements) that are to be displayed together.
✓	✓	✓	<target> **Target of an Internal Link** Anchor or fixed location that acts as the target for a cross-reference.
✓	✓	✓	<tbody> **Table Body (NISO JATS table model)** Container element that holds the rows and columns in one of the *body* (as opposed to the *header*) portions of a table.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<td> **Table Data Cell (NISO JATS table model)** One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML td element.)
✓	✓	✓	<term> **Definition List: Term** Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described. This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.
✓	✓	✓	<term-head> **Definition List: Term Head** Heading over the first column (the term column) of a definition list (two-part list).
✓	✓		<tex-math> **TeX Math Equation** Used to hold encoded math, expressed in TeX or LaTeX.
✓	✓	✓	<textual-form> **Textual Form** Textual form provides a place to hold a textual equivalent or searchable textual version of a complex structure such as an equation or a graphical object. The complex object and the textual equivalent are associated with each other by putting them in the same alternatives wrapper.
✓	✓	✓	<tfoot> **Table Footer (NISO JATS table model)** The footer rows and columns within a NISO JATS table. (This element is based on and intended to be converted easily to the XHTML tfoot element.)
✓	✓	✓	<th> **Table Header Cell (NISO JATS table model)** One cell in the table header, as opposed to an ordinary cell in the body of a table. (This element is based on and intended to be converted easily to the XHTML th element.)
✓	✓	✓	<thead> **Table Header (NISO JATS table model)** Container element for the table header rows of a table. (This element is based on and intended to be converted easily to the XHTML thead element.)
✓	✓	✓	<time-stamp> **Time Stamp for Cited Work** This element is deprecated. Avoid using it; use <date-in-citation>.
✓	✓	✓	<title> **Title** Heading or title for a structural element (for example, <sec>, <app>, <boxed-text>).
✓	✓	✓	<title-group> **Title Group** Container element to hold the various titles for a document or a document component.
✓	✓	✓	<tr> **Table Row (NISO JATS table model)** Container element for all the cells in a single table row. (This element is based on and intended to be converted easily to the XHTML tr element.)

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<trans-abstract> **Translated Abstract** Abstract that has been translated into a language other than that in which the work was originally published.
✓	✓	✓	<trans-source> **Translated Source** Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.
✓	✓		<trans-subtitle> **Translated Subtitle** Document or document component subtitle that has been translated into a language other than that of the original document or document component subtitle.
✓	✓	✓	<trans-title> **Translated Title** Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.
✓	✓		<trans-title-group> **Translated Title Group** Container element for translated and transliterated titles.
✓	✓	✓	<underline> **Underline** Used to mark text that should appear with a horizontal line beneath it.
✓			<underline-end> **Underline End** Milestone indicating the end of underlined text.
✓			<underline-start> **Underline Start** Milestone indicating the start of underlined text.
✓			<unstructured-kwd-group> **Unstructured Keyword Group** Container element for one set of keywords used to describe a document, where the individual keywords are not tagged as separate <kwd>s but instead are all run together in one long text field.
✓	✓	✓	<uri> **Uniform Resource Identifier (URI)** Identifies a Uniform Resource Identifier (such as a URL) that may be used as a live link, typically naming a website (such as: <uri>https://www.mulberrytech.com</uri>).
✓	✓	✓	<verse-group> **Verse Form for Poetry** Song, poem, or verse.
✓	✓	✓	<verse-line> **Line of a Verse** One line of a poem or verse.
✓	✓	✓	<version> **Version Statement** A full version statement, which may be only a number, for data or software that is cited or described.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<volume> **Volume Number** Number of a journal (or other document) within a series.
✓	✓	✓	<volume-id> **Volume Identifier** Name or identifier (for example, DOI) that describes an entire volume.
✓	✓		<volume-issue-group> **Volume Issue Grouping** A grouping element to hold related volume and issue elements.
✓	✓	✓	<volume-series> **Volume Series** Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.
✓	✓		<word-count> **Word Count** The approximate number of words that appear in a document or document component.
✓			<x> **X - Generated Text and Punctuation** Generated text or punctuation. Typically used when: • an archive decides not to have text generated on display and thus to pre-generate such things as commas or semicolons between keywords, or • an archive receives text with <x> tags embedded and wishes to retain them.
✓	✓	✓	<xref> **X (cross) Reference** Reference to an object within the document (for example, a table, a bibliographic citation).
✓	✓	✓	<year> **Year** Representation, usually numerical, of a calendar year.

7.2 Attributes

The attribute name is the shorter machine-readable name used in tagged documents, DTDs and schemas, and by software; for example, the attribute name `@sec-type` is used for the attribute informally named "Type of Section". Attribute names are preceded by an "@" symbol. Informal expanded attribute names appear next to the attribute names, in bold. Informal expanded names are explanatory or expanded names for the attributes. For example, the informal expanded attribute name "Type of People" in the Person Group is an expansion of the tag name `@person-group-type`.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@abbr` **Abbreviation (NISO JATS table model)** An abbreviated version of the cell's content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell's header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHTML `abbr` attribute.)

Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓		@abbrev-type **Type of Journal Title Abbreviation** Identifier of the authority that defined the abbreviation (for example, "nlm-ta" for an NLM title abbreviation, "publisher" for a publisher-specific abbreviation).
✓	✓	✓	@abstract-type **Type of Abstract** Type or style of abstract as identified by the publisher (for example, "short", "graphic", "ASCII", "stereochemical").
✓	✓	✓	@align **Horizontal Alignment (NISO JATS table model)** Sets the horizontal (line) alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML align attribute.)
✓	✓	✓	@alt **Alternative Text** Word or phrase that serves as a textual alternative for the element.
✓	✓	✓	@alt-title-type **Type of Alternate Title** Reason for or purpose of an alternate title (for example, "toc" for a title used in a Table of Contents, "rt-running" for a right-running-head title for print).
✓	✓	✓	@arrange **Arrangement of Subscripts and Superscripts** Indicates whether multiple subscripts and superscripts applying to the same character should stack (be placed one above the other as compactly as possible) or stagger (be stretched out in a line).
✓	✓	✓	@article-type **Type of Article** Type or kind of article (for example, "research", "commentary", "review", "case", or "calendar").
✓	✓	✓	@article-version-type **Type of the Article Version Statement** This @article-version-type identifies the type of information contained in the <article-version> element.
✓	✓	✓	@assigning-authority **Authority Responsible for an Identifier** Names the authority that assigned or administers an identifier used in this document, for example, Crossref, GenBank, or PDB.
✓	✓	✓	@audience **Audience for the Question** Names the perspective audience for the question(s).
✓	✓	✓	@authenticated **Authenticated** The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.
✓	✓	✓	@award-id-type **Type of Identifier for an Award** Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	`@award-type` **Type of Award** Type or kind of award (for example, "`grant`" or "`contract`").
✓	✓	✓	`@axis` **Axis (NISO JATS table model)** A method of categorizing table cells. The value of this attribute should be one or more category names. (This attribute is based on and intended to be converted easily to the XHTML `axis` attribute.)
✓	✓	✓	`@base-tagset` **Base Tag Set Name** Which of the JATS standard tag sets is the basis for this document?
✓	✓	✓	`@baseline-shift` **Baseline Shift** The position of an inline graphic with respect to the current text baseline (above, on, or below the baseline).
✓	✓	✓	`@border` **Border (Frame) around a Table (NISO JATS table model)** Thickness, in pixels, of the border to draw around the table. A value of "`0`" indicates that the table has no border. (This attribute is based on and intended to be converted easily to the XHTML `border` attribute.)
✓	✓	✓	`@calendar` **Calendar** Name of the calendar used in naming a date such as a publication date, for example, "`Gregorian`", "`Japanese`" (Emperor years), or "`Thai Buddha`".
✓	✓	✓	`@cellpadding` **Cell Padding (NISO JATS table model)** Amount of space, measured in pixels, between the border of a cell and the contents of a table cell. (This attribute is based on and intended to be converted easily to the XHTML `cellpadding` attribute.)
✓	✓	✓	`@cellspacing` **Cell Spacing (NISO JATS table model)** Width of space between cells in a table. (This attribute is based on and intended to be converted easily to the XHTML `cellspacing` attribute.)
✓	✓	✓	`@char` **Table Cell Alignment Character (NISO JATS table model)** The character to be used in horizontal alignment of the contents of an entry in a table. The content of a table data or table header element is to be aligned horizontally based on the character named in this attribute, for example, alignment on a period for decimal alignment or on an equal sign for alignment of variables. (This attribute is based on and intended to be converted easily to the XHTML `char` attribute.)
✓	✓	✓	`@charoff` **Table Character Offset (NISO JATS table model)** Horizontal offset from the alignment character specified by the `@char` attribute; the percent of the current column width to the left of the (left edge of the) alignment character. (This attribute is based on and intended to be converted easily to the XHTML `charoff` attribute.)
✓	✓	✓	`@code-type` **Type of Code** The type of this code, used to categorize or describe the code.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@code-version` **Code Version** Version of this program or code fragment.
✓	✓	✓	`@collab-type` **Type of Collaboration** Type or role of the collaborators; what function they played in the publication (for example, "`translators`", "`editors`").
✓	✓	✓	`@colspan` **Column Span (NISO JATS table model)** Table attribute used to request horizontal spanning of more than one column. (This attribute is based on and intended to be converted easily to the XHTML `colspan` attribute.)
✓	✓	✓	`@content-type` **Type of Content** Subject or type of content that makes this element semantically distinct.
✓	✓	✓	`@continued-from` **Continued From** `ID` of a list which the current list continues; used to connect discontiguous lists that form one logical list.
✓	✓	✓	`@contrib-id-type` **Contributor Identifier Type** Names the type of contributor identifier, such as an ORCID or a ScopusID.
✓	✓	✓	`@contrib-type` **Type of Contribution** Type of contribution made by the individual (for example, "`author`", "`editor`", "`translator`", "`research-assistant`").
✓	✓	✓	`@correct` **Correct Option Flag** Marks a multiple-choice option as correct or incorrect.
✓	✓	✓	`@corresp` **Corresponding Author** Indicates whether or not the contributor is the corresponding contributor for the content.
✓	✓	✓	`@count` **Count** Number of specific objects that appear in the document.
✓	✓		`@count-type` **Count Type** Names what is being counted by the `<count>` element, for example, images, contributors, algorithms, etc.
✓	✓	✓	`@country` **Country** An abbreviation or code that names a country. This is information that can be used to identify a country that granted a patent or to provide a machine-comparable form of the name of a country as an addition to the content of the `<country>` element.
✓	✓	✓	`@currency` **Currency** Type of currency in which the price is presented.

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@custom-type` **Custom Attribute Value Escape Hatch** Used in the same attribute list as an attribute with a set list of values, to provide a way for the content creator to say "my attribute value is not on the set list".
✓	✓	✓	`@date-type` **Type of Date** Event in the lifecycle of an object that this date is marking (for example, for an article, dates such as the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).
✓	✓	✓	`@deceased` **Deceased** Indicates whether or not the contributor described in the element was deceased when the document or document component was published.
✓	✓	✓	`@degree-contribution` **Degree of Contribution** Indicates the level of contribution for this contributor, such as "`Lead`" or "`Supporting`".
✓	✓	✓	`@description` **Description of a Private Character** Human-readable description of a defined private character (for example, "`Arrow, normal weight, single line, two-headed, Northwest to Southeast`").
✓	✓	✓	`@designator` **Designator** Used on such elements as edition number (`<edition>`) and version (`<version>`) to hold an unadorned numeric or alphabetic value of the edition or version number for machine search, when the number is a phrase or textual value.
✓			`@disp-level` **Display Level of a Heading** Indicates the level at which to display a section when the display level and hierarchical level are different.
✓	✓	✓	`@document-id` **Document Component Identifier** Identifier of a major document component within a publication that is (or contains) the target of the `<related-object>` element.
✓	✓	✓	`@document-id-type` **Document Identifier Type** Type of document identifier (for example, a DOI or a publisher's identifier) named in the `@document-id` attribute of the `<related-object>` element to identify a document, for example, "`doi`".
✓	✓	✓	`@document-type` **Document Type** The "document" is the part of the source that is typically delivered when a user follows the link to a `<related-object>`. This attribute names/describes what that document is.
✓	✓	✓	`@dtd-version` **Version of the Tag Set (DTD)** Version of the Tag Set to which this document claims to be valid.
✓	✓	✓	`@elocation-id` **Elocation Identifier** Bibliographic identifier for a related article that does not have traditional printed page numbers.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@end_date` **End Date** Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.
✓	✓	✓	`@equal-contrib` **Equal Contribution** Indicates whether or not all contributors contributed equally.
✓	✓		`@event-type` **Type of Event** Type or kind of event in the publication history of a document, for example, a reprint of a book or the publication of a revised online edition.
✓	✓	✓	`@executable` **Executable** Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.
✓	✓	✓	`@ext-link-type` **Type of External Link** Type of external link; may include a specific source (for example, "`pdb`", "`pir`"), identifier type (for example, "`doi`", "`aoi`"), or access method (for example, "`ftp`", "`uri`").
✓	✓	✓	`@fig-type` **Type of Figure** Type or format of the figure (for example, "`cartoon`", "`chart`", "`diagram`", "`map`", "`plate`", "`workflow`").
✓	✓	✓	`@fn-type` **Type of Footnote** Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).
✓	✓	✓	`@fontchar` **Font Character Table Offset** Offset of the character into a glyph table, such as a Unicode character.
✓	✓	✓	`@fontname` **Font Name** Name of the font.
✓	✓	✓	`@format` **Format** Name of the image format for the bitmap that is provided with a `<glyph-data>` element. (The `<glyph-data>` element is used to define a private use character when the `<private-char>` contains a bitmap.)
✓	✓	✓	`@frame` **Frame (NISO JATS table model)** Specifies which sides of the table should be given rules, making a box or frame of lines around the table. (This attribute is based on and intended to be converted easily to the XHTML `frame` attribute.)
✓	✓	✓	`@glyph-data` **Glyph Data Character Being Referenced** An `IDREF`-type attribute that points to the `@id` attribute of the `<glyph-data>` character inside a `<private-char>` element. The idea is to use the full `<glyph-data>` with its name and bitmap once, then point to an existing character instead of defining the entire `<glyph-data>` element repeatedly.

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@headers` **Headers (NISO JATS table model)** List of `@id`s of the table header (`<th>`) or the table data (`<td>`) cells that provide header information for this cell. (This attribute is based on and intended to be converted easily to the XHTML `headers` attribute.)
✓	✓	✓	`@hreflang` **Language of the Link Target** Language of the target to which a link is pointing. A processor following the link would expect to find a document in the language named.
✓	✓	✓	`@id` **Document Internal Identifier** Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.
✓	✓	✓	`@indent-level` **Indentation Level** This numeric attribute indicates the level of indentation of a line of verse (`<verse-line>`), relative to the entire verse or stanza (`<verse-group>`) in which the line is found.
✓	✓	✓	`@index-type` **Type of Index** Names the specific indexes in which an index term (`<index-term>`) should be used, for example, "`author`", "`subject`", "`chemical`".
✓	✓	✓	`@initials` **Initials for Personal Names** Initial(s) for the surname or the given names of a person.
✓	✓	✓	`@institution-id-type` **Type of Institution Identifier** Type of or name for an institution identifier, such as an ISNI or a RIN (Ringgold).
✓	✓	✓	`@iso-8601-date` **ISO-8601 Formatted Date** A machine-processable, ISO 8601 formatted date value ("`YYYY-MM-DDThh:mm:ss`") for a JATS date-specific element, whether the content of the date be specified as text, an ISO date, a partial date, or as any other date format. If the date *given in the content of the element* is in a non-Gregorian calendar, this attribute can hold the Gregorian calendar equivalent of that date.
✓	✓	✓	`@issue` **Issue Number of a Related Article** Issue number of a journal which contains the related article.
✓	✓	✓	`@journal-id` **Journal Identifier of a Related Article** Identifier for the journal that contains the related article.
✓	✓	✓	`@journal-id-type` **Type of Journal Identifier** Type of publication identifier, such as a DOI or a publisher's identifier.
✓	✓	✓	`@kwd-group-type` **Type or Kind of Keywords in the Group** The class or type of keyword, for example, "`abbreviations`" (for keywords that contain an abbreviation and its expansion) or "`author-provided`".

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@language` **Code Language** Programming or scripting language in which this code is written, e.g. "`javascript`", for code written in "JavaScript 3.0". (The "`3.0`" is recorded in the `@language-version` attribute.)
✓	✓	✓	`@language-version` **Code Language Version** Version of the language in which this code is written, e.g. "`3.0`", for code written in "JavaScript 3.0". (The language name "`javascript`" is recorded in the `@language` attribute.)
✓	✓	✓	`@license-type` **Type of License** Type of license described by the element.
✓	✓	✓	`@link-type` **Type of Link (for a Related Object)** How a `<related-object>` element is related to the current document (for example, to indicate a Table of Contents relationship).
✓	✓	✓	`@list-content` **List Content** Type of list, usually with a semantically meaningful name (for example, a "`where-list`" for the list of the variables that follows an equation, a "`notation-list`", or a "`procedure-list`" for a list of procedural steps to follow).
✓	✓	✓	`@list-type` **Type of List** Specifies what prefix character should precede each list item. For example, the style may suggest the character type ("`simple`" or "`ordered`"), or the style may name the character explicitly ("`alpha-lower`" for a list numbered "a.", "b.", "c.").
✓	✓	✓	`@math-representation` **Math Representation in This Document** A list of the (possibly many) ways that mathematical expressions may be represented in this document, for example, both MathML and TeX ("`mathml tex`") or both MathML, SVG graphics, and narrative text ("`mathml images plain-text`").
✓	✓	✓	`@mathml-version` **MathML Version** Which version of MathML is used by the tag set for this document?
✓	✓	✓	`@mime-subtype` **Mime Subtype** Mime subtype for a graphic, multimedia object, or piece of supplementary material.
✓	✓	✓	`@mimetype` **Mime Type** Mime type for a graphic, multimedia object, or piece of supplementary material.
✓	✓	✓	`@name` **Name (Private Character)** This attribute is used with `<private-char>`, to contain the unique name for the private character being defined.
✓	✓	✓	`@name-style` **Name Style** Style of processing requested for a structured personal name.

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓		@notation **Notation** Indicates that the content of the associated element will be coded in one of the named notations.
✓	✓		@notes-type **Type of Notes** Type of note contained in the element (for example, "note-in-proof").
✓	✓	✓	@object-id **Object Identifier** Identifier of an object (for example, a table, figure, or sidebar) within a separate document that is the target of the <related-object> element.
✓	✓	✓	@object-id-type **Object Identifier Type** Type of object identifier (for example, an XML ID, a string, the label of the object, a DOI) for a <related-object> element.
✓	✓	✓	@object-type **Object Type** Type of object (for example, "table", "figure", "sidebar") that is the target of the <related-object> element.
✓	✓	✓	@orientation **Orientation** Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical ("portrait") or in a wide manner with the long edge horizontal ("landscape").
✓	✓	✓	@page **Page of Related Article** Page number of a related journal article, which may be either the number of the journal page on which the article starts or a page range.
✓	✓	✓	@person-group-type **Type of People in the Person Group** Role of the person(s) being named in the <person-group> element (for example, author, editor, curator).
✓	✓	✓	@platforms **Platforms** Name(s) of hardware and/or software platform(s) on which the <code> is intended to run. It is assumed that each such platform will have a one-word "name", and multiple platform names will be separated by spaces.
✓	✓	✓	@pointer-to-explained **Pointer to Object Described in Explanation** Used in an <explanation> to point to the <question>, <answer>, or <option> that is being explained.
✓	✓	✓	@pointer-to-question **Pointer to Question** Used in an <answer> to point to the <question>(s) for which it supplies correct answer(s).

Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	@position **Position** Typically indicates whether a display object (for example, figure, table, boxed text) must be anchored in its exact location within the text or may float to a different location in the document (for example, to the top of the next page, into the next column, within a separate window). Also used to indicate that the display object should be placed in the margin or used as a background image behind the text.
✓	✓	✓	@prefix-word **Prefix Word (For a List Item)** Word or phrase to be added to the beginning of each item in a list (for example, "Step", "Procedure").
✓	✓	✓	@preformat-type **Type of Preformatted Text** Type of content contained in the <preformat> element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).
✓	✓	✓	@product-type **Type of Product** Category of product described in the element (for example, "book", "software", "article", "issue", "website", "film", "hardware").
✓	✓	✓	@pub-id-type **Type of Publication Identifier** Type of publication identifier, such as a DOI or a publisher's identifier.
✓	✓	✓	@publication-format **Format of Publication** Format or medium of the document (for example, "print"). This element is used in several senses: • to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, • to describe the format/medium for an ISSN or ISBN, and • to name the format/medium of the document being cited as part of a bibliographic reference.
✓	✓	✓	@publication-type **Type of Referenced Publication** Category of publication being cited (for example, "journal" (journal article), "preprint", "book", "letter", "review", "patent", "report", "standard", "data", "working-paper").
✓	✓	✓	@publisher-type **Type of Publisher** Type of publisher or publishing organization of a work being cited (for example, "government", "standards-body", "university", "commercial", "foundation", "private", "corporate").

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	@pub-type **Type of Publication** **Deprecated:** On the element <pub-date>, in the Archiving and Publishing Tag Sets, this @pub-type attribute is deprecated in favor of the @publication-format and @date-type attributes. In all Tag Sets, on the element <issn>, this @pub-type attribute is deprecated in favor of the @publication-format attribute (possibly with the @content-type attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other. **Definition:** Deprecated precombination of the format/medium of a document with one or more events from its lifecycle, for example, "epub" for publication in an electronic format or "ppub" for publication in print.
✓	✓	✓	@question-response-type **Type of Answer(s) to be Given to the Question** Used to mark a question as taking a particular type of answer or set of answers, for example, "multiple-choice" or "essay".
✓	✓		@rationale **Rationale** Identifies why this milestone exists, what problem it is solving, and/or what object cannot be modeled using the regular hierarchy.
✓	✓	✓	@ref-type **Type of Cross-Reference** Type of element that is the target of the cross-reference (for example: a Figure ("fig"), an Author Note ("author-notes"), or a Bibliographic Reference ("bibr")). The values may be used, for example, for type-specific processing or validation.
✓	✓	✓	@related-article-type **Type of Related Article** Type of article being described by the <related-article> element or type of relationship the article being described by the <related-article> has to the current article (for example, "companion-article" means the related article is a companion to the current article, "corrected-article means the related article corrects the current article", or "preprint" could be used to point from the version of record to an earlier related preprint).
✓	✓	✓	@resolution **Resolution of the Glyph Bitmap** Resolution of a bitmap in dots per inch, expressed as a decimal integer (for example, "72", "300").
✓	✓	✓	@resource-id-type **Resource Identifier Type** Names the type or kind of identifier of a resource, where a resource is defined as some specific support for the work described in this article (for example, "rrid" for a Research Resource Identifier).
✓	✓	✓	@resource-type **Resource Type** Names the type or kind of resource, where a resource is defined as some specific support for the work described in this article, for example, "research-materials".
✓	✓		@response-type **Type of Response** Type of response (<response>); parallels @article-type.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@rid` **Reference to an Identifier** Value of the identifier of an associated element; used for linking related elements (for example, `<term>` to a `<def>`, `<bio>` to a `<contrib>`).
✓	✓	✓	`@rowspan` **Row Span (NISO JATS table model)** Table attribute used to request vertical spanning by naming the number of rows a cell spans in a vertical span. (This attribute is based on and intended to be converted easily to the XHTML `rowspan` attribute.)
✓	✓	✓	`@rules` **Rules (NISO JATS table model)** Defines which rules to draw between the rows and columns of an XHTML 1.1 table. (This attribute is based on and intended to be converted easily to the XHTML `rules` attribute.)
✓	✓	✓	`@scope` **Scope (NISO JATS table model)** Specifies the cells for which the current `<td>` element or `<th>` element provides header information. Screen readers and other Assistive Technologies use `@scope` to provide information about the table structure that would be obvious to most sighted people. (This attribute is based on the XHTML `scope` attribute.)
✓	✓	✓	`@sec-type` **Type of Section** Type of semantic content included in the section (for example, "`materials`", "`conclusions`").
✓	✓	✓	`@seq` **Sequence** Sequence number of a document within the type of sequence named by the element to which this attribute is attached: on a `<volume>` element, the sequence within the volume; on an `<issue>` element, the sequence within the issue; on an `<fpage>` element, the sequence within a single page; and on an `<elocation-id>` element, the electronic sequence.
✓	✓	✓	`@source-id` **Source Identifier** Identifier of a journal, book, conference proceedings, or other publication that is (or contains) the target of the `<related-object>`.
✓	✓	✓	`@source-id-type` **Source Identifier Type** Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher's identifier) for a `<related-object>`.
✓	✓	✓	`@source-type` **Source Type** This attribute can be used with two elements: • to identify the kind of source providing an award that sponsored a work or the research on which a work was based (with the element `<funding-source>`), or • to identify the type of publication, for example, a "`book`", "`journal`", or "`database`" that is (or contains) the target of the `<related-object>`.
✓	✓	✓	`@span` **Span (NISO JATS table model)** The number of columns that will share the `<col>` or `<colgroup>` element's attributes. (This attribute is based on and intended to be converted easily to the XHTML `span` attribute.)

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	@specific-use **Specific Use** Specifies distinctions in the applicability of a particular element.
✓	✓	✓	@start_date **Start Date** Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.
✓	✓	✓	@style **Style (NISO JATS table model; MathML Tag Set)** Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts: • with the styled content element (<styled-content>), to record XHTML classes CSS style names/classes or similar styling information; • with many of the elements within a NISO JATS table (<table>), to record the name of the XHTML 1.1 table styling to be applied to the element; • To format verse, used with <verse-line> and <verse-group>.
✓	✓	✓	@style-detail **Styling Detail** Provides additional information about a style (typically named by the @style attribute), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.
✓	✓	✓	@style-type **Style Type** Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).
✓	✓	✓	@subj-group-type **Type of Subject Group** Subject, information class, or type of a particular <subj-group> element.
✓	✓	✓	@summary **Summary (NISO JATS table model)** A summary of the contents or the semantics of the table, provided for speech-synthesis and non-visual browsers. (This attribute is based on and intended to be converted easily to the XHTML summary attribute.)
✓	✓	✓	@supplement-type **Type of Supplement** Type of supplement or the reason for the supplement (for example, "conference" for a supplement containing information from a conference symposium).
✓	✓	✓	@support-type **Type of Support Provided** Names a type or kind of support for the research described in this article, for example, provision of facilities or materials.
✓	✓		@symbol **Symbol** Stores the symbol (for example, an asterisk, numeral, section mark) that was displayed in the original document to identify a specific footnote, if this symbol is to be preserved.

Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	`@table-model` **Table Model Used** Which table model is used by the tag set for this document?
✓	✓	✓	`@tagset-family` **JATS Tag Set Family** Which of the JATS tag set families is the basis for this document's tag set?
✓	✓	✓	`@target-type` **Type of Target** Kind of `<target>` that has been created (for example, describes the reason why some portion of text has been designated for cross-reference purposes).
✓	✓	✓	`@term-status` **Term Status** The current status of a term (`<term>`) in the vocabulary from which it is taken, for example, "`preferred`".
✓	✓	✓	`@term-type` **Type of Term** The type or kind of a term (`<term>`), for example, "`acronym`".
✓	✓	✓	`@toggle` **Toggle Switch** Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.
✓	✓		`@underline-style` **Appearance of the Underline** Style of underline to be used (for example, "`single`", "`double`", "`dashed`").
✓	✓	✓	`@units` **Units** The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value may record "`pages`", "`minutes`", "`seconds`", or "`linear-feet`").
✓	✓	✓	`@use-type` **Type of Use** If there is a specific use-case for this citation, this attribute describes it, for example, if this is a data citation, it may state that the data was "`analyzed-data`" for this article, rather than generated.
✓	✓	✓	`@valign` **Vertical Alignment (NISO JATS table model)** Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `valign` attribute.)
✓	✓		`@version` **Version of TeX or LaTeX** Version of TeX or LaTeX used to produce the mathematics.
✓	✓	✓	`@vocab` **Vocabulary/Taxonomy Name** The name of a taxonomy, ontology, database, term list, thesaurus, index, controlled vocabulary (defined formally), generic vocabulary (subject area that is defined informally), etc. that is the source of terms such as keywords and subjects.

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@vocab-identifier` **Vocabulary/Taxonomy Identifier** Unique identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, for example, the controlled vocabulary for a group of terms such as a keywords or subjects. The content is typically (but is not limited to) a URI or DOI.
✓	✓	✓	`@vocab-term` **Vocabulary/Taxonomy Term** The named vocabulary's canonical form of the term. (Note: The content of the element to which this attribute is attached is the display version of the term.)
✓	✓	✓	`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier** A unique identifier within a specific vocabulary for the term to which this attribute is attached, such as (but not limited to) an item number, a URI, a DOI, etc.
✓	✓	✓	`@vol` **Volume of Related Article** Volume of the journal in which a related journal article exists.
✓	✓	✓	`@width` **Width (NISO JATS table model)** This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).
✓	✓	✓	`@xlink:actuate` **Actuating the Link** The intended behavior for a link when activated by an application, specifically, the timing for obtaining or retrieving the content of a link (for example, by a user clicking on the link to request the material, or by the material being automatically loaded with a document when the document or document component is loaded).
✓	✓	✓	`@xlink:href` **Href (Linking Mechanism)** An address or identifier that permits an XLink application to find a remote resource, for example, a URI (such as a URL or filename) that links to an online site associated with the author or the online definition of a term.
✓	✓	✓	`@xlink:role` **Role of the Link** A URI reference pointing to some resource that describes the role or function of a link.
✓	✓	✓	`@xlink:show` **Showing the Link** The intended presentation behavior for a link, specifically the manner in which the content of a link will be displayed, for example, as embedded material or in a separate window.
✓	✓	✓	`@xlink:title` **Title of the Link** Describes the function of a link's remote resource in human-readable fashion.
✓	✓	✓	`@xlink:type` **Type of Link** The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word "`simple`", which means that the link is a simple, one-ended link.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@xml:base` **Base** Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an `@xml:base` of "`https://jats.nlm.nih.gov/`", a URI inside the document of "`publishing/rationale.html`" would be processed as if it were "`https://jats.nlm.nih.gov/publishing/rationale.html`". Values of `@xml:base` are inherited, meaning that if there is an `@xml:base` on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.
✓	✓	✓	`@xml:lang` **Language** The language of the intellectual content of the element for which this is an attribute. The value of this attribute must conform to IETF RFC 5646 (https://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "`fr`" (French), "`en`" (English), "`de`" (German), or "`zh`" (Chinese) is sufficient. These values are **NOT** case sensitive, but current best practice uses all lower case. In addition to the primary-language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: https://www.iana.org/assignments/language-subtag-registry
✓	✓	✓	`@xmlns:ali` **NISO ALI Namespace (NISO Access and License Indicators)** This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO *Access and License Indicators*) elements. All namespace prefixes must be associated with a URL, and the prefix "`ali`" has been set to the URL `http://www.niso.org/schemas/ali/1.0/` as per the NISO ALI best practices recommendation.
✓	✓	✓	`@xmlns:mml` **MathML Namespace Declaration** This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix "`mml`" has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same namespace is used for both MathML 2.0 and MathML 3.0.
✓	✓	✓	`@xmlns:xlink` **XLink Namespace Declaration** This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the XLink linking attributes. All namespace prefixes must be associated with a URL, and the prefix "`xlink`" has been set to the URL for the World Wide Web Consortium (W3C) XLink Recommendation.
✓	✓	✓	`@xmlns:xsi` **XML Schema Namespace Declaration** This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use in namespace pseudo-attributes such as `@xsi:noNamespaceSchemaLocation`. All namespace prefixes must be associated with a URL, and the prefix "`xsi`" has been set to the URL for the World Wide Web Consortium (W3C) XML Schema.
✓	✓	✓	`@xml:space` **Space** When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@x-size` **X Size of the Glyph** The pixels per row in the bit-mapped glyph that has been declared with a `<glyph-data>` element as part of a `<private-char>` element.
✓	✓	✓	`@xsi:noNamespaceSchemaLocation` **No Namespace Schema Location** A pseudo-attribute some processors use to point to the location of the Tag Set's XSD file. Cannot be used with DTDs.
✓	✓	✓	`@y-size` **Y Size of the Glyph** The number of rows in the bit-mapped glyph that has been declared with a `<glyph-data>` element as part of a `<private-char>` element.

8 Journal Archiving and Interchange Tag Set, version 1.3

8.1 Rationale

The Archiving and Interchange Tag Set defines elements and attributes that describe the content and metadata of a journal article, including research articles; subject-review articles; non-research articles; letters; editorials; book, software, and product reviews; peer reviews, and author responses included with an article. The Tag Set allows for descriptions of the full article content or just the article header metadata.

The intent of the Archiving Tag Set is to provide a standardized format in which to preserve the intellectual content of previously-published journal articles, capture structural and semantic components, and provide a single format into which content from many providers can be translated easily, with minimal loss.

This focus on being a conversion target for multiple sources has made this Tag Set a large and inclusive one. The Tag Set includes many loose structures—including some with nearly all content structures optional—and many elements that were created explicitly to avoid discarding information tagged by users when the material is converted into this Tag Set from another format. Most of the attribute values in the Tag Set are character data values, accommodating any source value. Care has also been taken to provide several mechanisms (for example, user-defined name/value pairs in the metadata and information-classing attributes for many structural elements) to preserve the intellectual content of a document structure when that structure is converted from another tag set or schema to this one and there is no exact element equivalent of the structural or semantic element.

Although the presentation order (reading order) of a published journal article cannot always be preserved—particularly within the metadata—the Archiving Tag Set provides the most flexibility of all the NISO JATS Tag Sets allowing for preservation of observed content without resorting to stylesheets or generation of textual elements. For that reason, labels, numbers, symbols of tables, figures, sidebars, and the like can be recorded as elements, as can the punctuation and spaces inside bibliographic references and lists.

This Tag Set describes an article model that is an easy conversion target for content originally tagged in other article models.

8.2 Scope

By design, this is a model for journal articles, such as the typical research article found in an STM journal, and not a model for complete journals. This Tag Set does not include an overarching model for a collection of articles. In addition, the following journal material is not described by this Tag Set:

- Company, product, or service display advertising

- Job search or classified advertising
- Calendars, meeting schedules, and conference announcements (except as these can be tagged as ordinary articles, sub-articles, or sections within articles)
- Material specific to an individual journal, such as Author Guidelines, Policy and Scope statements, editorial or advisory boards, detailed indicia, etc.

8.3 Article Structural Overview

The Journal Archiving and Interchange Tag Set defines a document that is a top-level component of a journal such as an article, a book or product review, or a letter to the editor. Each such document is composed of one or more parts; if there is more than one part, they must appear in the following order:

- **Processing Metadata** (optional). The metadata that concerns the XML file rather than the contents of the article.
- **Front matter** (required). The article front matter contains the metadata for the article (also called article header information), for example, the article title, the journal in which it appears, the date and issue of publication for that issue of that journal, a copyright statement, etc. This is not textual front matter as appears in books, rather this is bibliographic information about the article and the journal in which it was published.
- **Body of the article** (optional). The body of the article is the main textual and graphic content of the article. This usually consists of paragraphs and sections, which may themselves contain figures, tables, sidebars (boxed text), etc. The body of the article is optional to accommodate those repositories that just keep article header information and do not tag the textual content.
- **Back matter for the article** (optional). If present, the article back matter contains information that is ancillary to the main text, such as a glossary, appendix, or list of cited references.
- **Floating Material** (optional). A publisher may choose to place all the floating objects in an article (such as tables, figures, boxed text sidebars, etc.) into a separate container element outside the narrative flow for convenience of processing.
- **Responses and sub-articles** (optional). Following the front, body, back, and floating material, there may be either one or more responses to the article or one or more subordinate articles:
    - **Response**. A response is a commentary on the article itself, for example, an opinion from an editor on the importance of the article or a reply from the original author to a letter concerning his article.
    - **Sub-article**. A sub-article is a small article that is completely contained inside another article.

8.4 Elements

Each element in the Tag Set is listed and identified, and specifics of the model of the element in this Tag Set are provided.

Each element is identified with a <tag>, element name, and definition, as it is listed in Section 7, *Tag Suite Components*. Following that appears the modeling information specific to this Tag Set:

- any attributes the element may have in this Tag Set, including:
    - the attribute name and
    - the attribute's informal expanded name
- the element's content model, described in narrative form, in which:
    - the relationships among elements or groups of elements are specified, for example, "Any combination of" if the structures may occur in any sequence, or "The following, in order" if the structures must appear in the specified sequence
    - the elements are identified by their <tag>s and Element Names
    - notes indicating occurrence:

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- if the relationship indicator is “Any combination of” any of the elements therein may occur zero or more times in any sequence
- if there is any other relationship indicator, it is assumed that an element must occur, and may occur only once unless there is a statement otherwise. Such statement may be “zero or one”, “one or more”, or “zero or more”.

Note that for the convenience of the user these models are provided as non-normative XML DTDs, W3C XML Schemas (XSD), and as RELAX NG Schemas (RNGs), which may be found at: https://jats.nlm.nih.gov

8.4.1 <abbrev> Abbreviation or Acronym

Abbreviation, acronym, or emoticon used in the text of a document, possibly including an expansion of the acronym.

Attributes:

`@alt` **Alternative Text**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**

- ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <def> **Definition List: Definition**

8.4.2 <abbrev-journal-title> Abbreviated Journal Title

Short form of the title of the journal in which an article is published.

Attributes:

@abbrev-type **Type of Journal Title Abbreviation**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**

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- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.3 <abstract> Abstract

Summarized description of the content of a document or document component.

Attributes:

@abstract-type **Type of Abstract**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- The following, in order:
  - <sec-meta> **Section Metadata**, zero or one
  - <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
  - <title> **Title**, zero or one
  - Any combination of:
    - Paragraph-level Display Elements
      - <address> **Address/Contact Information**
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <array> **Array (Simple Tabulation)**
      - <block-alternatives> **Block-level Alternatives**
      - <boxed-text> **Boxed Text**
      - <chem-struct-wrap> **Chemical Structure Wrapper**
      - <code> **Code**
      - <explanation> **Explanation**
      - <fig> **Figure**
      - <fig-group> **Figure Group**
      - <graphic> **Graphic**

- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

▪ <alternatives> **Alternatives For Processing**
▪ <disp-formula> **Formula, Display**
▪ <disp-formula-group> **Formula, Display Group**
▪ Lists
- <def-list> **Definition List**
- <list> **List**

▪ Math Elements
- <tex-math> **TeX Math Equation**
- <mml:math> **Math (MathML Tag Set)**

▪ <p> **Paragraph**
▪ <related-article> **Related Article Information**
▪ <related-object> **Related Object Information**
▪ <ack> **Acknowledgments**
▪ <disp-quote> **Quote, Displayed**
▪ <speech> **Speech**
▪ <statement> **Statement, Formal**
▪ <verse-group> **Verse Form for Poetry**
▪ <x> **X - Generated Text and Punctuation**

◦ <sec> **Section**, zero or more
◦ Any combination of:
▪ <notes> **Notes**
▪ <fn-group> **Footnote Group**
▪ <glossary> **Glossary Elements List**
▪ <ref-list> **Reference List (Bibliographic)**

8.4.4 <access-date> Access Date for Cited Work

This element is deprecated, Avoid using it; use <date-in-citation>.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- <x> **X - Generated Text and Punctuation**

8.4.5 <ack> Acknowledgments

Textual material that names the parties who the author wishes to thank or recognize for their assistance in/ contributions toward the article, for example, producing the work, funding the work, inspiring the work, or assisting in the research on which the work is based.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<sec-meta>` **Section Metadata**, zero or one
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<answer>` **Answer to a Question**
    - `<answer-set>` **Answer Set**
    - `<array>` **Array (Simple Tabulation)**
    - `<block-alternatives>` **Block-level Alternatives**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<code>` **Code**
    - `<explanation>` **Explanation**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<question>` **Question**
    - `<question-wrap>` **Question Wrapper**
    - `<question-wrap-group>` **Question Wrapper Group**
    - `<supplementary-material>` **Supplementary Material Metadata**
    - `<table-wrap>` **Table Wrapper**
    - `<table-wrap-group>` **Table Wrapper Group**
  - `<alternatives>` **Alternatives For Processing**
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**
  - Lists
    - `<def-list>` **Definition List**
    - `<list>` **List**
  - Math Elements
    - `<tex-math>` **TeX Math Equation**
    - `<mml:math>` **Math (MathML Tag Set)**
  - `<p>` **Paragraph**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
  - `<ack>` **Acknowledgments**
  - `<disp-quote>` **Quote, Displayed**
  - `<speech>` **Speech**
  - `<statement>` **Statement, Formal**
  - `<verse-group>` **Verse Form for Poetry**
  - `<x>` **X - Generated Text and Punctuation**
- `<sec>` **Section**, zero or more
- Any combination of:
  - `<notes>` **Notes**
  - `<fn-group>` **Footnote Group**
  - `<glossary>` **Glossary Elements List**
  - `<ref-list>` **Reference List (Bibliographic)**

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8.4.6 <addr-line> Address Line

One physical or logical line of an address.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

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- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <city> **City**
- <country> **Country: in an Address**
- <fax> **Fax Number: in an Address**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <phone> **Phone Number: in an Address**
- <postal-code> **Postal Code**
- <state> **State or Province**

8.4.7 <address> Address/Contact Information

Container element for contact information such as a postal address for a person or organization.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <x> **X - Generated Text and Punctuation**

8.4.8 <aff> Affiliation

Name of an institution or organization (for example, university, corporation) with which a contributor is affiliated.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**

- ◦ <fax> **Fax Number: in an Address**
- ◦ <institution> **Institution Name: in an Address**
- ◦ <institution-wrap> **Institution Wrapper**
- ◦ <phone> **Phone Number: in an Address**
- ◦ <postal-code> **Postal Code**
- ◦ <state> **State or Province**

- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

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8.4.9 <aff-alternatives> Affiliation Alternatives

Container element to hold two or more representations of a single affiliation (for example, the name of a university in two or more languages such as both German and English).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<aff> **Affiliation**, one or more

8.4.10 <ali:free_to_read> Free to Read (NISO Access and License Indicators)

A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.

Attributes:

@content-type **Type of Content**
@end_date **End Date**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@start_date **Start Date**
@xml:base **Base**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**

Content model:

This is an EMPTY element

8.4.11 <ali:license_ref> License Reference (NISO and Access License Indicators)

A reference to a URI that carries the license terms specifying how a work may be used.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@start_date **Start Date**
@xml:base **Base**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**

Content model:

Text, numbers, or special characters

8.4.12 <alt-text> Alternate Text Name (for a figure, etc.)

Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a figure or a graphic, nearly always used for Accessibility.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.13 <alt-title> Alternate Title

An alternative or different version of the title of a work.

Attributes:

@alt-title-type **Type of Alternate Title**

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

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8.4.14 <alternatives> Alternatives For Processing

Container element used to hold a group of processing alternatives, for example, a single <graphic> that ships in several formats (tif, gif, and jpeg) or in different resolutions. This element is a physical grouping to contain multiple logically equivalent (substitutable) versions of the same information object. Typically these are processing alternatives, and the reader is expected to see only one version of the object.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- One or more of any of:
  - <array> **Array (Simple Tabulation)**
  - <chem-struct> **Chemical Structure (Display)**
  - <code> **Code**
  - <graphic> **Graphic**
  - Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table> **Table (NISO JATS table model)**
  - <textual-form> **Textual Form**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**

8.4.15 <annotation> Annotation in a Citation

Commentary, summary, review, or similar non-bibliographic information concerning the cited work.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

8.4.16 <anonymous> Anonymous

Placeholder for the name of a contributor where the actual name is unknown or not disclosed.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**

- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.17 <answer> Answer to a Question

The correct answer to a question.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@pointer-to-question **Pointer to Question**
@specific-use **Specific Use**
@xml:base **Base**

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`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- Any one of:
  - `<sec>` **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - `<address>` **Address/Contact Information**
      - `<alternatives>` **Alternatives For Processing**
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<array>` **Array (Simple Tabulation)**
      - `<block-alternatives>` **Block-level Alternatives**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**
      - `<question-wrap-group>` **Question Wrapper Group**
      - `<supplementary-material>` **Supplementary Material Metadata**
      - `<table-wrap>` **Table Wrapper**
      - `<table-wrap-group>` **Table Wrapper Group**
      - `<disp-formula>` **Formula, Display**
      - `<disp-formula-group>` **Formula, Display Group**
      - Lists
        - `<def-list>` **Definition List**
        - `<list>` **List**
      - Math Elements
        - `<tex-math>` **TeX Math Equation**
        - `<mml:math>` **Math (MathML Tag Set)**
      - `<p>` **Paragraph**
      - `<related-article>` **Related Article Information**
      - `<related-object>` **Related Object Information**
      - `<ack>` **Acknowledgments**
      - `<disp-quote>` **Quote, Displayed**
      - `<speech>` **Speech**
      - `<statement>` **Statement, Formal**
      - `<verse-group>` **Verse Form for Poetry**
      - `<x>` **X - Generated Text and Punctuation**
    - `<sec>` **Section**, zero or more
- Any combination of:
  - `<notes>` **Notes**
  - `<fn-group>` **Footnote Group**
  - `<glossary>` **Glossary Elements List**
  - `<ref-list>` **Reference List (Bibliographic)**
- `<explanation>` **Explanation**, zero or more

8.4.18 `<answer-set>` Answer Set

A series of answers, typically grouped for display purposes.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- One or more of any of:
  - `<answer>` **Answer to a Question**
  - `<p>` **Paragraph**
  - `<explanation>` **Explanation**

8.4.19 <app> Appendix

Additional material added to a document that typically follows the body of the document. This is ancillary or supporting material, not a direct continuation of the text of the document.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- The following, in order:
  - `<sec-meta>` **Section Metadata**, zero or one
  - `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
  - `<title>` **Title**, zero or one
  - Any combination of:
    - Paragraph-level Display Elements
      - `<address>` **Address/Contact Information**
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<array>` **Array (Simple Tabulation)**
      - `<block-alternatives>` **Block-level Alternatives**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<explanation>` **Explanation**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**
      - `<question-wrap-group>` **Question Wrapper Group**
      - `<supplementary-material>` **Supplementary Material Metadata**
      - `<table-wrap>` **Table Wrapper**
      - `<table-wrap-group>` **Table Wrapper Group**
    - `<alternatives>` **Alternatives For Processing**
    - `<disp-formula>` **Formula, Display**

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        - <disp-formula-group> **Formula, Display Group**
        - Lists
          - <def-list> **Definition List**
          - <list> **List**
        - Math Elements
          - <tex-math> **TeX Math Equation**
          - <mml:math> **Math (MathML Tag Set)**
        - <p> **Paragraph**
        - <related-article> **Related Article Information**
        - <related-object> **Related Object Information**
        - <ack> **Acknowledgments**
        - <disp-quote> **Quote, Displayed**
        - <speech> **Speech**
        - <statement> **Statement, Formal**
        - <verse-group> **Verse Form for Poetry**
        - <x> **X - Generated Text and Punctuation**
      - <sec> **Section**, zero or more
      - Any combination of:
        - <notes> **Notes**
        - <fn-group> **Footnote Group**
        - <glossary> **Glossary Elements List**
        - <ref-list> **Reference List (Bibliographic)**
  - <permissions> **Permissions**, zero or one

8.4.20 <app-group> Appendix Group

Container element for one or more appendices (<app> elements).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**

        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
    - <alternatives> **Alternatives For Processing**
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**
    - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
    - <p> **Paragraph**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
    - <ack> **Acknowledgments**
    - <disp-quote> **Quote, Displayed**
    - <speech> **Speech**
    - <statement> **Statement, Formal**
    - <verse-group> **Verse Form for Poetry**
    - <x> **X - Generated Text and Punctuation**
- Any combination of:
    - <app> **Appendix**
    - <ref-list> **Reference List (Bibliographic)**

8.4.21 <array> Array (Simple Tabulation)

Tabular arrangement of text in the narrative flow of the document. Unlike a <table-wrap>, an array does not contain a label, title, caption, or table headings (column heads).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- Any combination of:
    - Accessibility Elements
        - <alt-text> **Alternate Text Name (for a figure, etc.)**
        - <long-desc> **Long Description**
    - Linking Elements
        - <email> **Email Address**
        - <ext-link> **External Link**
        - <uri> **Uniform Resource Identifier (URI)**
- Any one of:
    - Any combination of:
        - <alternatives> **Alternatives For Processing**
        - <graphic> **Graphic**
        - <media> **Media Object**
    - <tbody> **Table Body (NISO JATS table model)**
- Any combination of:
    - Ownership Elements
        - <attrib> **Attribution**
        - <permissions> **Permissions**

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8.4.22 <article> Article

A journal article.

Attributes:

@article-type **Type of Article**
@dtd-version **Version of the Tag Set (DTD)**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**
@xmlns:mml **MathML Namespace Declaration**
@xmlns:xlink **XLink Namespace Declaration**
@xmlns:xsi **XML Schema Namespace Declaration**
@xsi:noNamespaceSchemaLocation **No Namespace Schema Location**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- <front> **Front Matter**
- <body> **Body of the Document**, zero or one
- <back> **Back Matter**, zero or one
- <floats-group> **Floating Element Group**, zero or one
- Any one of:
  - <sub-article> **Sub-article**, zero or more
  - <response> **Response**, zero or more

8.4.23 <article-categories> Article Grouping Data

Container element for elements that may be used to group articles into related clusters, for example, by subject matter or by series.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <subj-group> **Subject Group**, zero or more
- <series-title> **Series Title**, zero or more
- <series-text> **Series Text: Header Text to Describe**, zero or more

8.4.24 <article-id> Article Identifier

Unique external identifier assigned to an article.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.25 <article-meta> Article Metadata

Container element for information concerning the article that identifies or describes the article.

Attributes:

@id **Document Internal Identifier**

`@xml:base` **Base**

Content model:

The following, in order:

- `<article-id>` **Article Identifier**, zero or more
- Optionally any one of:
  - `<article-version>` **Article Current Version Status or Number**
  - `<article-version-alternatives>` **Article Current Version Alternatives**
- `<article-categories>` **Article Grouping Data**, zero or one
- `<title-group>` **Title Group**, zero or one
- Any combination of:
  - `<contrib-group>` **Contributor Group**
  - `<aff>` **Affiliation**
  - `<aff-alternatives>` **Affiliation Alternatives**
  - `<x>` **X - Generated Text and Punctuation**
- `<author-notes>` **Author Note Group**, zero or one
- Any one of:
  - `<pub-date>` **Publication Date**, zero or more
  - `<pub-date-not-available>` **Publication Date Not Available Flag**, zero or one
- `<volume>` **Volume Number**, zero or more
- `<volume-id>` **Volume Identifier**, zero or more
- `<volume-series>` **Volume Series**, zero or one
- `<issue>` **Issue Number**, zero or more
- `<issue-id>` **Issue Identifier**, zero or more
- `<issue-title>` **Issue Title**, zero or more
- `<issue-title-group>` **Issue Title Group**, zero or more
- `<issue-sponsor>` **Issue Sponsor**, zero or more
- `<issue-part>` **Issue Part**, zero or one
- `<volume-issue-group>` **Volume Issue Grouping**, zero or more
- `<isbn>` **ISBN**, zero or more
- `<supplement>` **Supplement Information**, zero or one
- Optionally any one of:
  - The following, in order:
    - Optionally, the following sequence (in order):
      - `<fpage>` **First Page**
      - `<lpage>` **Last Page**, zero or one
    - `<page-range>` **Page Ranges**, zero or one
  - `<elocation-id>` **Electronic Location Identifier**
- Any combination of:
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
  - `<product>` **Product Information**
  - `<supplementary-material>` **Supplementary Material Metadata**
- `<history>` **History: Document History**, zero or one
- `<pub-history>` **Publication History**, zero or one
- `<permissions>` **Permissions**, zero or one
- `<self-uri>` **URI for This Same Article Online**, zero or more
- Any combination of:
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<abstract>` **Abstract**, zero or more
- `<trans-abstract>` **Translated Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<funding-group>` **Funding Group**, zero or more
- `<support-group>` **Support Group**, zero or more
- `<conference>` **Conference Information**, zero or more
- `<counts>` **Counts**, zero or one
- `<custom-meta-group>` **Custom Metadata Group**, zero or one

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8.4.26 <article-title> Article Title

Full title of an article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**

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    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.27 <article-version> Article Current Version Status or Number

Holds version information such as a version type, version status, version statement, or version number for the current article.

Attributes:

@article-version-type **Type of the Article Version Statement**
@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

8.4.28 <article-version-alternatives> Article Current Version Alternatives

A container element to hold multiple <article-version> elements, when a single article has more than one *simultaneous* version identifier and all should be recorded. For example, an article may be described with both a NISO-RP-8-2008 JAV version phrase and a publisher or aggregator version number.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<article-version> **Article Current Version Status or Number**, one or more

8.4.29 <attrib> Attribution

Container element for information concerning the origin of an extract, figure, display quote, table, verse, or similar element.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**

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- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.30 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

`@xml:lang` **Language**

Content model:

The following, in order:

- `<title>` **Title**, zero or one
- `<p>` **Paragraph**, one or more

8.4.31 `<author-notes>` Author Note Group

Container element for notes about the article's contributors.

Attributes:

`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- One or more of any of:
  - `<corresp>` **Correspondence Information**
  - `<fn>` **Footnote**
  - `<p>` **Paragraph**
  - `<x>` **X - Generated Text and Punctuation**

8.4.32 `<award-desc>` Award Description

Descriptive text associated with an award ID or award name, which may express, for example, the type of award ("Post-doc fellowship", "operating grant"), something about the award ("statutory funds"), or a description of the award ("a research grant for developing innovative cancer treatments").

Attributes:

`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

8.4.33 `<award-group>` Award Group

Container element for information concerning one award of the possibly multiple sources of support for this work (or the research on which the work was based).

Attributes:

`@award-type` **Type of Award**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**

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`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- Any one of:
  - `<funding-source>` **Funding Source**, zero or more
  - `<support-source>` **Support Source**, zero or more
- `<award-id>` **Award Identifier**, zero or more
- `<award-name>` **Award Name**, zero or one
- `<award-desc>` **Award Description**, zero or one
- `<principal-award-recipient>` **Principal Award Recipient**, zero or more
- `<principal-investigator>` **Principal Investigator**, zero or more

8.4.34 `<award-id>` Award Identifier

Unique identifier assigned to an award, contract, or grant.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@award-id-type` **Type of Identifier for an Award**
`@award-type` **Type of Award**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**

- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.35 <award-name> Award Name

Some awards are known by specific names, for historical reasons or to honor a funder, mentor, or researcher. This element holds the text of such a name, such as the "Marie Curie Career Integration Grant", the "Schleswig-Holstein Excellence Chair" or the "Wolfson Merit Award".

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

8.4.36 <back> Back Matter

Material published with an article but following the narrative flow.

Attributes:

@id **Document Internal Identifier**

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`@xml:base` **Base**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or more
- Any combination of:
  - `<ack>` **Acknowledgments**
  - `<app-group>` **Appendix Group**
  - `<bio>` **Biography**
  - `<fn-group>` **Footnote Group**
  - `<glossary>` **Glossary Elements List**
  - `<ref-list>` **Reference List (Bibliographic)**
  - `<notes>` **Notes**
  - `<sec>` **Section**

8.4.37 `<bio>` Biography

Biographical data concerning a contributor or the description of a collaboration.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- `<sec-meta>` **Section Metadata**, zero or one
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<answer>` **Answer to a Question**
    - `<answer-set>` **Answer Set**
    - `<array>` **Array (Simple Tabulation)**
    - `<block-alternatives>` **Block-level Alternatives**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<code>` **Code**
    - `<explanation>` **Explanation**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<question>` **Question**
    - `<question-wrap>` **Question Wrapper**
    - `<question-wrap-group>` **Question Wrapper Group**
    - `<supplementary-material>` **Supplementary Material Metadata**
    - `<table-wrap>` **Table Wrapper**

        - <table-wrap-group> **Table Wrapper Group**
    - <alternatives> **Alternatives For Processing**
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**
    - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
    - <p> **Paragraph**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
    - <ack> **Acknowledgments**
    - <disp-quote> **Quote, Displayed**
    - <speech> **Speech**
    - <statement> **Statement, Formal**
    - <verse-group> **Verse Form for Poetry**
    - <x> **X - Generated Text and Punctuation**
- <sec> **Section**, zero or more
- Any combination of:
    - <notes> **Notes**
    - <fn-group> **Footnote Group**
    - <glossary> **Glossary Elements List**
    - <ref-list> **Reference List (Bibliographic)**

8.4.38 <block-alternatives> Block-level Alternatives

Container element to hold block-level processing alternatives, such as the same table or figure in two languages.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- One or more of any of:
    - <boxed-text> **Boxed Text**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**

8.4.39 <body> Body of the Document

Main textual portion of the document that conveys the narrative content.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- Any combination of:
    - Paragraph-level Display Elements
        - <address> **Address/Contact Information**
        - <answer> **Answer to a Question**
        - <answer-set> **Answer Set**
        - <array> **Array (Simple Tabulation)**
        - <block-alternatives> **Block-level Alternatives**

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        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <code> **Code**
        - <explanation> **Explanation**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
      - <alternatives> **Alternatives For Processing**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <ack> **Acknowledgments**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
      - <x> **X - Generated Text and Punctuation**
  - <sec> **Section**, zero or more
  - <sig-block> **Signature Block**, zero or one

8.4.40 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**

    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.41 <boxed-text> Boxed Text

Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <caption> **Caption of a Figure, Table, etc.**, zero or one

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- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <ack> **Acknowledgments**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - <x> **X - Generated Text and Punctuation**
- <sec> **Section**, zero or more
- Any combination of:
  - <notes> **Notes**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.42 <break> Line Break

An explicit line break in the text.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.43 <caption> Caption of a Figure, Table, etc.

Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

8.4.44 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter. This element is deprecated in JATS. Avoid using it; use <part-title> instead.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements

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- ◦ <chem-struct> **Chemical Structure (Display)**
- ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.45 <chem-struct> Chemical Structure (Display)

Chemical expression, reaction, equation, etc. that is set apart within the text.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - ◦ <alt-text> **Alternate Text Name (for a figure, etc.)**
  - ◦ <long-desc> **Long Description**
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**

- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.46 <chem-struct-wrap> Chemical Structure Wrapper

Wrapper element for a chemical expression, reaction, equation, etc. that is set apart from the text; includes any number, label, or caption that accompanies the chemical expression.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**

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`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<caption>` **Caption of a Figure, Table, etc.**, zero or one
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- One or more of any of:
  - `<alternatives>` **Alternatives For Processing**
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<code>` **Code**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<textual-form>` **Textual Form**
- Any combination of:
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

8.4.47 `<citation-alternatives>` Citation Alternatives

Holds alternative versions of a single citation, for example, the same citation in multiple languages or a single citation tagged as both a `<mixed-citation>` complete with punctuation and spacing preserved and as an `<element-citation>` with punctuation and spacing removed.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- One or more of any of:
  - `<element-citation>` **Element Citation**
  - `<mixed-citation>` **Mixed Citation**
  - `<nlm-citation>` **NLM Citation**

8.4.48 `<city>` City

The name of a city.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

8.4.49 <code> Code

A container element for technical content such as programming language code, pseudo-code, schemas, or a markup fragment.

Attributes:

`@code-type` **Type of Code**
`@code-version` **Code Version**
`@executable` **Executable**
`@id` **Document Internal Identifier**
`@language` **Code Language**
`@language-version` **Code Language Version**
`@orientation` **Orientation**
`@platforms` **Platforms**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xml:space` **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

8.4.50 <col> Table Column (NISO JATS table model)

The description of one column of a table, used to provide attributes relating to a specific column. If there is no <col> element these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHTML col element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.51 <colgroup> Table Column Group (NISO JATS table model)

A container element to hold column descriptions (element <col>) for a group of columns in a table—or for all of the columns in the table if there is only one <colgroup> in the table. Attributes on the <colgroup> apply to all of the columns in the group unless over-ridden on the <col>. (This element is based on and intended to be converted easily to the XHTML colgroup element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

<col> **Table Column (NISO JATS table model)**, zero or more

8.4.52 <collab> Collaborative (Group) Author

Group of contributors credited under a single name, such as an organization credited as a contributor.

Attributes:

@collab-type **Type of Collaboration**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@symbol **Symbol**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**

`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Address Elements
  - `<addr-line>` **Address Line**
  - `<city>` **City**
  - `<country>` **Country: in an Address**
  - `<fax>` **Fax Number: in an Address**
  - `<institution>` **Institution Name: in an Address**
  - `<institution-wrap>` **Institution Wrapper**
  - `<phone>` **Phone Number: in an Address**
  - `<postal-code>` **Postal Code**
  - `<state>` **State or Province**
- `<hr>` **Horizontal Rule**
- `<break>` **Line Break**
- `<contrib-group>` **Contributor Group**
- `<address>` **Address/Contact Information**
- `<aff>` **Affiliation**
- `<aff-alternatives>` **Affiliation Alternatives**
- `<author-comment>` **Author Comment**
- `<bio>` **Biography**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<etal>` **Et Al.**
- `<fn>` **Footnote**
- `<on-behalf-of>` **On Behalf of**
- `<role>` **Role or Function Title of Contributor**
- `<xref>` **X (cross) Reference**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**

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- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.53 <collab-alternatives> Collaboration Alternatives

Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<collab> **Collaborative (Group) Author**, one or more

8.4.54 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**

- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.55 <compound-kwd> Compound Keyword

Wrapper element for multi-part keywords (for example, a code and its meaning).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

<compound-kwd-part> **Compound Keyword Part**, one or more

8.4.56 <compound-kwd-part> Compound Keyword Part

Individual component of a multi-part keyword (for example, a code, the code's meaning).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

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Content model:

Any combination of:

- Text, numbers, or special characters
- <break> **Line Break**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.57 <compound-subject> Compound Subject Name

Wrapper element to hold all the parts of a multi-part subject (for example, a subject term and the code representing that term).

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xml:base` **Base**

Content model:

`<compound-subject-part>` **Compound Subject Part Name**, one or more

8.4.58 <compound-subject-part> Compound Subject Part Name

Individual component of a multi-part subject (for example, subject term, code for the term).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

8.4.59 <conf-acronym> Conference Acronym

Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).

Attributes:

`@content-type` **Type of Content**

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`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

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8.4.60 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <x> **X - Generated Text and Punctuation**

8.4.61 <conf-loc> Conference Location

Physical location(s) of a conference (for example, city, country, campus, organization location).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**

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- ◦ <italic> **Italic**
- ◦ <monospace> **Monospace Text (Typewriter Text)**
- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Address Elements
  - ◦ <addr-line> **Address Line**
  - ◦ <city> **City**
  - ◦ <country> **Country: in an Address**
  - ◦ <fax> **Fax Number: in an Address**
  - ◦ <institution> **Institution Name: in an Address**
  - ◦ <institution-wrap> **Institution Wrapper**
  - ◦ <phone> **Phone Number: in an Address**
  - ◦ <postal-code> **Postal Code**
  - ◦ <state> **State or Province**

8.4.62 <conf-name> Conference Name

Full name of a conference, including any qualifiers such as “43rd Annual”.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.63 <conf-num> Conference Number

Sequential number of a conference.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

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- <x> **X - Generated Text and Punctuation**

8.4.64 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**

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- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

8.4.65 <conf-theme> Conference Theme

Theme, slogan, or major subject area of a conference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**

- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <milestone-end> **Milestone End**
- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.66 <conference> Conference Information

Container element to contain information about a single conference and its proceedings.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- <conf-date> **Conference Date**
- <conf-name> **Conference Name**
- <conf-num> **Conference Number**
- <conf-loc> **Conference Location**
- <conf-sponsor> **Conference Sponsor**
- <conf-theme> **Conference Theme**
- <conf-acronym> **Conference Acronym**
- <string-conf> **String Conference Name**
- <x> **X - Generated Text and Punctuation**

8.4.67 <contrib> Contributor

Container element for information about a single author, editor, or other contributor to the article.

Attributes:

@contrib-type **Type of Contribution**
@corresp **Corresponding Author**
@deceased **Deceased**
@equal-contrib **Equal Contribution**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**

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@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- <contrib-id> **Contributor Identifier**
- Contributor Naming Elements
  - <anonymous> **Anonymous**
  - <collab> **Collaborative (Group) Author**
  - <collab-alternatives> **Collaboration Alternatives**
  - <name> **Name of Person**
  - <name-alternatives> **Name Alternatives**
  - <string-name> **Name of Person (Unstructured)**
- <degrees> **Degree(s)**
- <address> **Address/Contact Information**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <author-comment> **Author Comment**
- <bio> **Biography**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <etal> **Et Al.**
- <fn> **Footnote**
- <on-behalf-of> **On Behalf of**
- <role> **Role or Function Title of Contributor**
- <xref> **X (cross) Reference**
- <x> **X - Generated Text and Punctuation**

8.4.68 <contrib-group> Contributor Group

Container element for one or more contributors and information about those contributors.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

One or more of any of:

- <contrib> **Contributor**
- <address> **Address/Contact Information**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <author-comment> **Author Comment**
- <bio> **Biography**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <etal> **Et Al.**
- <fn> **Footnote**
- <on-behalf-of> **On Behalf of**
- <role> **Role or Function Title of Contributor**
- <xref> **X (cross) Reference**
- <x> **X - Generated Text and Punctuation**

8.4.69 <contrib-id> Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element may hold, for example, an ORCID, a trusted publisher's identifier, a JST identifier (Japan Science and Technology Agency), an arXiv Author ID, or a Scopus Author ID.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@authenticated **Authenticated**
@content-type **Type of Content**
@contrib-id-type **Contributor Identifier Type**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.70 <contributed-resource-group> Contributed Resource Group

Container element for information concerning non-financial support for the research reported in the work (typically an article). Such support may include facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

@id **Document Internal Identifier**
@resource-type **Resource Type**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <award-group> **Award Group**, zero or more
- <support-description> **Support Description**, zero or more
- <resource-group> **Resource Group**, zero or more

8.4.71 <copyright-holder> Copyright Holder

Name of the organizational or personal entity that holds a copyright.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.72 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

- <x> **X - Generated Text and Punctuation**

8.4.73 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.74 <corresp> Correspondence Information

Information concerning how and with whom to correspond about an article.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**

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    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

8.4.75 <count> Count

Generic count element to count anything a NISO JATS user organization may wish to count in a document. The @count-type attribute will name what is being counted (such as footnotes, tables, sections, contributors, images, etc.) The @count attribute will state how many of the objects are in the document.

Attributes:

@count **Count**
@count-type **Count Type**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.76 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters

- <x> **X - Generated Text and Punctuation**

8.4.77 <counts> Counts

Container element for counts of a document (for example, the number of tables, number of figures, number of words).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <count> **Count**, zero or more
- <fig-count> **Figure Count**, zero or one
- <table-count> **Table Count**, zero or one
- <equation-count> **Equation Count**, zero or one
- <ref-count> **Reference Count**, zero or one
- <page-count> **Page Count**, zero or one
- <word-count> **Word Count**, zero or one

8.4.78 <custom-meta> Custom Metadata

Wrapper element for a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <meta-name> **Metadata Data Name for Custom Metadata**
- <meta-value> **Metadata Data Value for Custom Metadata**

8.4.79 <custom-meta-group> Custom Metadata Group

Container element for metadata not otherwise defined in the Tag Suite.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

<custom-meta> **Custom Metadata**, one or more

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8.4.80 <data-title> Data Title

The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

8.4.81 <date> Date

Container element for the parts of a single calendar date.

Attributes:

@calendar **Calendar**
@date-type **Type of Date**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:

- Optionally any one of:
  - The following, in order:

        - <day> **Day**, zero or one
        - <month> **Month**, zero or one
    - <season> **Season**
- <year> **Year**, zero or one
- <era> **Era of Time**, zero or one
- <string-date> **Date as a String**, zero or one

8.4.82 <date-in-citation> Date within a Citation

Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.83 <day> Day

Numeric, two-digit value of the day of the month.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Text, numbers, or special characters

8.4.84 <def> Definition List: Definition

Definition, explanation, or expansion of a word, phrase, or abbreviation.

Attributes:

`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

8.4.85 <def-head> Definition List: Definition Head

Heading over the second column (the definition column) of a definition list (two-part list).

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**

- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.86 <def-item> Definition List: Definition Item

One item in a definition (two-part) list.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <term> **Definition List: Term**, zero or more
- Any combination of:
  - <def> **Definition List: Definition**
  - <x> **X - Generated Text and Punctuation**

8.4.87 <def-list> Definition List

List in which each item consists of two parts: 1) a word, phrase, term, graphic, chemical structure, or equation, that is paired with 2) one or more descriptions, discussions, explanations, or definitions of it.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <term-head> **Definition List: Term Head**, zero or one
- <def-head> **Definition List: Definition Head**, zero or one
- Any combination of:
  - <def-item> **Definition List: Definition Item**
  - <x> **X - Generated Text and Punctuation**

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- <def-list> **Definition List**, zero or more

8.4.88 <degrees> Degree(s)

Academic titles or professional certifications displayed following a personal name (for example, "MD", "PhD").

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**

- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.89 <disp-formula> Formula, Display

Mathematical equation, expression, or formula that is to be displayed as a block (callout) within the narrative flow.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**

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    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <abstract> **Abstract**
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - <break> **Line Break**
  - <caption> **Caption of a Figure, Table, etc.**
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**
  - <object-id> **Object Identifier**
  - <kwd-group> **Keyword Group**
  - <subj-group> **Subject Group**
  - <label> **Label (of an Equation, Figure, Reference, etc.)**
  - <array> **Array (Simple Tabulation)**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**

8.4.90 <disp-formula-group> Formula, Display Group

Container element for equations or other mathematical expressions.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Any combination of:
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**

8.4.91 <disp-quote> Quote, Displayed

Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <ack> **Acknowledgments**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - <x> **X - Generated Text and Punctuation**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

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8.4.92 <edition> Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

@content-type **Type of Content**
@designator **Designator**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
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- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**

8.4.93 <element-citation> Element Citation

Bibliographic description of a work. Includes bibliographic reference elements only. Does not include untagged text, spacing, or punctuation.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@use-type **Type of Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

One or more of any of:
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

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- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**

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- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.94 <elocation-id> Electronic Location Identifier

Bibliographic identifier for a document that does not have traditional printed page numbers.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.95 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements

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    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.96 <equation-count> Equation Count

Number of <disp-formula> elements that appear in the document.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.97 <era> Era of Time

A specified range of years that is named for an event, political ruler, or characterization of the timespan.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.98 <etal> Et Al.

Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements

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    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**

8.4.99 <event> Event in Publishing History

An event in the publication history of an article, for example, reprinting or publishing a revised online edition. This element may contain information such as a description of the event (<event-desc>), copyright information for a reprint or edition, a publication date, a URI for the article, etc.

Attributes:

@event-type **Type of Event**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <event-desc> **Event Description**, zero or one
- <article-id> **Article Identifier**, zero or more
- Optionally any one of:
  - <article-version> **Article Current Version Status or Number**
  - <article-version-alternatives> **Article Current Version Alternatives**
- Any one of:
  - <pub-date> **Publication Date**, zero or more
  - <pub-date-not-available> **Publication Date Not Available Flag**, zero or one
- Any combination of:
  - <date> **Date**
  - <string-date> **Date as a String**
- <issn> **ISSN International Standard Serial Number**, zero or more
- <issn-l> **ISSN-L (Linking ISSN)**, zero or one
- <isbn> **ISBN**, zero or more
- <permissions> **Permissions**, zero or one
- <notes> **Notes**, zero or more
- <self-uri> **URI for This Same Article Online**, zero or more

8.4.100 <event-desc> Event Description

This is a description of an event in the publication history of an article, for example, reprinting or publishing a revised online edition. This text field may be as simple a few words or as complex as a narrative with embedded markup.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<article-id>` **Article Identifier**
- `<issn>` **ISSN International Standard Serial Number**
- `<issn-l>` **ISSN-L (Linking ISSN)**
- `<isbn>` **ISBN**
- `<article-version>` **Article Current Version Status or Number**
- `<article-version-alternatives>` **Article Current Version Alternatives**
- `<date>` **Date**
- `<string-date>` **Date as a String**
- `<pub-date>` **Publication Date**
- `<pub-date-not-available>` **Publication Date Not Available Flag**

8.4.101 `<explanation>` Explanation

An explanation of why an answer is correct, or why an option is or is not correct. An explanation may provide additional information about a question, point to text that may provide useful information, or describe why one answer might be confused with another.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@pointer-to-explained` **Pointer to Object Described in Explanation**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- Any one of:
  - `<sec>` **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - `<address>` **Address/Contact Information**
      - `<alternatives>` **Alternatives For Processing**
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<array>` **Array (Simple Tabulation)**
      - `<block-alternatives>` **Block-level Alternatives**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**

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- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- <x> **X - Generated Text and Punctuation**

▪ <sec> **Section**, zero or more

- Any combination of:
  - <notes> **Notes**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

8.4.102 <ext-link> External Link

Link to an external file or resource.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements

- ◦ <bold> **Bold**
- ◦ <fixed-case> **Fixed Case**
- ◦ <italic> **Italic**
- ◦ <monospace> **Monospace Text (Typewriter Text)**
- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.103 <extended-by> Extended-by Model

Identification of a JATS extension that the document claims to be following.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**

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`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

8.4.104 <fax> Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**

- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.105 <fig> Figure

Block of graphical or textual material that is identified as a figure, usually bearing a caption and a label such as "Figure 3." or "Figure".

Attributes:

@fig-type **Type of Figure**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - ◦ Accessibility Elements
    - ▪ <alt-text> **Alternate Text Name (for a figure, etc.)**
    - ▪ <long-desc> **Long Description**
  - ◦ Linking Elements
    - ▪ <email> **Email Address**
    - ▪ <ext-link> **External Link**
    - ▪ <uri> **Uniform Resource Identifier (URI)**
- Any combination of:
  - ◦ <disp-formula> **Formula, Display**
  - ◦ <disp-formula-group> **Formula, Display Group**
  - ◦ <chem-struct-wrap> **Chemical Structure Wrapper**
  - ◦ <disp-quote> **Quote, Displayed**
  - ◦ <speech> **Speech**
  - ◦ <statement> **Statement, Formal**
  - ◦ <verse-group> **Verse Form for Poetry**
  - ◦ <table-wrap> **Table Wrapper**
  - ◦ <p> **Paragraph**
  - ◦ Lists
    - ▪ <def-list> **Definition List**
    - ▪ <list> **List**
  - ◦ <alternatives> **Alternatives For Processing**
  - ◦ <array> **Array (Simple Tabulation)**
  - ◦ <code> **Code**
  - ◦ <graphic> **Graphic**
  - ◦ <media> **Media Object**
  - ◦ <preformat> **Preformatted Text**
  - ◦ <xref> **X (cross) Reference**

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- Any combination of:
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

8.4.106 `<fig-count>` Figure Count

Number of `<fig>` elements that appear in the document.

Attributes:

`@count` **Count**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

This is an EMPTY element

8.4.107 `<fig-group>` Figure Group

Container element for figures that are to be displayed together.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- `<caption>` **Caption of a Figure, Table, etc.**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- Any combination of:
  - `<fig>` **Figure**
  - `<block-alternatives>` **Block-level Alternatives**
  - `<xref>` **X (cross) Reference**
  - `<alternatives>` **Alternatives For Processing**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**

8.4.108 `<fixed-case>` Fixed Case

Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**

`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

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8.4.109 <floats-group> Floating Element Group

Container element for floating objects (figures, tables, text boxes, graphics, etc.) that occur within an article. Occurs outside of the narrative flow of the article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- <alternatives> **Alternatives For Processing**
- <block-alternatives> **Block-level Alternatives**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

8.4.110 <fn> Footnote

Additional information tied to a particular location in the text. This material is not considered to be part of the body of the text, but is a note used instead of, in addition to, as a source for, or as a commentary on either some body text or on an element in the metadata such as an author.

Attributes:

@custom-type **Custom Attribute Value Escape Hatch**
@fn-type **Type of Footnote**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@symbol **Symbol**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <p> **Paragraph**, one or more

8.4.111 <fn-group> Footnote Group

Container element for footnotes that appear at the end of the document.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
  - <fn> **Footnote**
  - <x> **X - Generated Text and Punctuation**

8.4.112 <fpage> First Page

Page number on which a document starts.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.113 <front> Front Matter

Container element for the metadata of an article and the journal in which it was published.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <journal-meta> **Journal Metadata**, zero or one
- <article-meta> **Article Metadata**
- Any combination of:
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <ack> **Acknowledgments**
  - <bio> **Biography**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <notes> **Notes**

8.4.114 <front-stub> Stub Front Metadata

Reduced set of metadata for use in <sub-article> and <response>, both of which are contained within an article. Any metadata not explicitly tagged in the front-stub is inherited from <article-meta> in the enclosing article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <article-id> **Article Identifier**, zero or more
- Optionally any one of:
  - <article-version> **Article Current Version Status or Number**
  - <article-version-alternatives> **Article Current Version Alternatives**
- <article-categories> **Article Grouping Data**, zero or one
- <title-group> **Title Group**, zero or one
- Any combination of:
  - <contrib-group> **Contributor Group**
  - <aff> **Affiliation**
  - <aff-alternatives> **Affiliation Alternatives**
  - <x> **X - Generated Text and Punctuation**
- <author-notes> **Author Note Group**, zero or one
- Any one of:
  - <pub-date> **Publication Date**, zero or more

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    - <pub-date-not-available> **Publication Date Not Available Flag**, zero or one
- <volume> **Volume Number**, zero or more
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or more
- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-title-group> **Issue Title Group**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one
- <volume-issue-group> **Volume Issue Grouping**, zero or more
- <isbn> **ISBN**, zero or more
- <supplement> **Supplement Information**, zero or one
- Optionally any one of:
    - The following, in order:
        - Optionally, the following sequence (in order):
            - <fpage> **First Page**
            - <lpage> **Last Page**, zero or one
        - <page-range> **Page Ranges**, zero or one
    - <elocation-id> **Electronic Location Identifier**
- Any combination of:
    - Linking Elements
        - <email> **Email Address**
        - <ext-link> **External Link**
        - <uri> **Uniform Resource Identifier (URI)**
    - <product> **Product Information**
    - <supplementary-material> **Supplementary Material Metadata**
- <history> **History: Document History**, zero or one
- <pub-history> **Publication History**, zero or one
- <permissions> **Permissions**, zero or one
- <self-uri> **URI for This Same Article Online**, zero or more
- Any combination of:
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <abstract> **Abstract**, zero or more
- <trans-abstract> **Translated Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <funding-group> **Funding Group**, zero or more
- <support-group> **Support Group**, zero or more
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

8.4.115 <funding-group> Funding Group

Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <award-group> **Award Group**, zero or more
- <funding-statement> **Funding Statement**, zero or more
- <open-access> **Open Access**, zero or more

8.4.116 <funding-source> Funding Source

Agency or organization that funded the research on which a work was based.

Attributes:

@country **Country**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@source-type **Source Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**

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- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <milestone-end> **Milestone End**
- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

• Internal Linking Elements
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

• Baseline Change Elements
- <sub> **Subscript**
- <sup> **Superscript**

• <x> **X - Generated Text and Punctuation**
• <institution> **Institution Name: in an Address**
• <institution-wrap> **Institution Wrapper**

8.4.117 <funding-statement> Funding Statement

Displayable prose statement that describes the funding for the research on which a work was based.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

• Text, numbers, or special characters
• Linking Elements
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**

• Related Material Elements
- <inline-supplementary-material> **Inline Supplementary Material Metadata**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**

• <hr> **Horizontal Rule**
• Emphasis Elements
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**

- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**

8.4.118 <given-names> Given (First) Names

All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.

Attributes:

@id **Document Internal Identifier**
@initials **Initials for Personal Names**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**

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- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.119 <glossary> Glossary Elements List

Section whose content is typically a list of terms and definitions, usually tagged as one or more two-part lists called <def-list>. Typically part of the back matter of a document.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - ◦ Paragraph-level Display Elements
    - ▪ <address> **Address/Contact Information**
    - ▪ <answer> **Answer to a Question**
    - ▪ <answer-set> **Answer Set**

        - <array> **Array (Simple Tabulation)**
        - <block-alternatives> **Block-level Alternatives**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <code> **Code**
        - <explanation> **Explanation**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
      - <alternatives> **Alternatives For Processing**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <ack> **Acknowledgments**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
      - <x> **X - Generated Text and Punctuation**
  - <glossary> **Glossary Elements List**, zero or more

8.4.120 <glyph-data> Glyph Data for a Private Character

Most characters in an XML document can be expressed as regular Unicode® codes. Characters not in the Unicode Standard tables have traditionally been expressed as explicit font calls (non-portable), created as inline graphics, or defined in one of the Unicode private-use areas where users may define their own characters. The <glyph-data> element is used when there is known to be no font available to render a private-use character. This element provides information on the actual glyph that is associated with the private-use character.

Attributes:

@fontchar **Font Character Table Offset**
@fontname **Font Name**
@format **Format**
@id **Document Internal Identifier**
@resolution **Resolution of the Glyph Bitmap**
@xml:base **Base**
@xml:space **Space**
@x-size **X Size of the Glyph**
@y-size **Y Size of the Glyph**

Content model:

Text, numbers, or special characters

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8.4.121 <glyph-ref> Glyph Reference for a Private Character

Once a private character has been declared using a <glyph-data> element, the character need not be defined with the same <glyph-data> element every time it is used. The character can be reused by using the <glyph-ref> element to point to the full <glyph-data> element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <glyph-ref> element to point to the @id attribute of an existing <glyph-data> element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.

Attributes:

@glyph-data **Glyph Data Character Being Referenced**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.122 <gov> Government Report, Cited

Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**

- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.123 <graphic> Graphic

Description of and pointer to an external file containing a still image.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- <abstract> **Abstract**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <caption> **Caption of a Figure, Table, etc.**
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

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- <kwd-group> **Keyword Group**
- <subj-group> **Subject Group**
- <xref> **X (cross) Reference**

8.4.124 <history> History: Document History

Container element for dates related to the processing history of the document (for example, received date, accepted date).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements

    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <break> **Line Break**
  - <date> **Date**
  - <string-date> **Date as a String**

8.4.125 <hr> Horizontal Rule

An explicit horizontal rule.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.126 <index-term> Index Term

The index term to be embedded into the narrative of an article so that an Index can be created programmatically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@index-type **Type of Index**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <term> **Definition List: Term**
- Any one of:
  - <index-term> **Index Term**
  - Any combination of:
    - <see> **See**
    - <see-also> **See-Also**

8.4.127 <index-term-range-end> Index Term Range End

The marker for the end of a range when an index term embedded into the narrative of a document is the start of a range.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

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8.4.128 <inline-formula> Formula, Inline

Mathematical equation, expression, or formula that is to be displayed inline. The mathematics itself can be expressed as ASCII characters, as a graphic, or using TeX, LaTeX, or MathML mathematics expressions.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.129 <inline-graphic> Graphic, Inline

Description of and pointer to an external graphic that is displayed or set in the same line as the text.

Attributes:

@baseline-shift **Baseline Shift**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**

8.4.130 <inline-media> Inline Media Object

Description of and pointer to an external file that holds an inline media object (for example, a pronunciation file for a word or character).

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**

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`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

8.4.131 `<inline-supplementary-material>` Inline Supplementary Material Metadata

Inline description of, and possibly a pointer to, an external file that provides supplementary information for the document.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**

- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.132 <institution> Institution Name: in an Address

Name of an institution or organization (for example, a university or corporation).

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**

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`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**

    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <break> **Line Break**

8.4.133 <institution-id> Institution Identifier

A externally defined institutional identifier, for example, a publisher-defined identifier or one defined by an ISO standard, such as “ISNI” or “ISLL”.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@institution-id-type **Type of Institution Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.134 <institution-wrap> Institution Wrapper

A wrapper element to hold both the name of an institution (<institution>) and any identifiers for that institution (<institution-id>), for example, an INSI or Ringgold ID.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- <institution> **Institution Name: in an Address**
- <institution-id> **Institution Identifier**

8.4.135 <isbn> ISBN

International Standard Book Number, the international code for identifying a particular product form or edition of a publication, typically a monographic publication.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- <x> **X - Generated Text and Punctuation**

8.4.136 <issn> ISSN International Standard Serial Number

Standard code assigned by the ISSN network for the unique identification of serials and other continuing resources in a defined medium version.

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Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@publication-format` **Format of Publication**
`@pub-type` **Type of Publication**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<x>` **X - Generated Text and Punctuation**

8.4.137 `<issn-l>` ISSN-L (Linking ISSN)

An ISSN designated by an ISSN Centre to group together the different media versions of a work. Since a single ISSN-L is assigned no matter how many media formats of a work there are, the ISSN-L can be used to link among the different media versions of the work or continuing resource, for example, both the printed and online versions of the work.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<x>` **X - Generated Text and Punctuation**

8.4.138 `<issue>` Issue Number

Issue number of a journal, or in rare instances, a book.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**

- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.139 <issue-id> Issue Identifier

Name or identifier of an entire journal issue (for example, a DOI).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

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8.4.140 <issue-part> Issue Part

Number, name, or other identifier of a sub-part of a journal issue.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

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- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.141 <issue-sponsor> Issue Sponsor

Sponsor for an issue of the journal.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**

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- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.142 <issue-subtitle> Issue Subtitle

Records a subtitle for an issue of the journal.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**

- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <milestone-end> **Milestone End**
- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

• Internal Linking Elements
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

• Baseline Change Elements
- <sub> **Subscript**
- <sup> **Superscript**

• <x> **X - Generated Text and Punctuation**

8.4.143 <issue-title> Issue Title

Theme or special title for a journal issue.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

• Text, numbers, or special characters

• Linking Elements
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**

• Related Material Elements
- <inline-supplementary-material> **Inline Supplementary Material Metadata**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**

• <hr> **Horizontal Rule**

• Emphasis Elements
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

• <alternatives> **Alternatives For Processing**

• Inline Display Elements
- <inline-graphic> **Graphic, Inline**
- <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**

• Inline Math Elements
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**

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- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.144 <issue-title-group> Issue Title Group

Grouping element to associate issue title metadata (such as the issue title and subtitle) for a single issue.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <issue-title> **Issue Title**
- <issue-subtitle> **Issue Subtitle**, zero or more
- <trans-title-group> **Translated Title Group**, zero or more

8.4.145 <italic> Italic

Used to mark text that should appear in an italic or slanted font.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**

- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.146 <journal-id> Journal Identifier

Short code or abbreviation used as an identifier for a journal.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.147 <journal-meta> Journal Metadata

Container element for metadata about the journal in which the article was published.

Attributes:

@id **Document Internal Identifier**

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`@xml:base` **Base**

Content model:

The following, in order:

- `<journal-id>` **Journal Identifier**, zero or more
- `<journal-title-group>` **Journal Title Group**, zero or more
- Any combination of:
  - `<contrib-group>` **Contributor Group**
  - `<aff>` **Affiliation**
  - `<aff-alternatives>` **Affiliation Alternatives**
- `<issn>` **ISSN International Standard Serial Number**, zero or more
- `<issn-l>` **ISSN-L (Linking ISSN)**, zero or one
- `<isbn>` **ISBN**, zero or more
- `<publisher>` **Publisher**, zero or one
- `<notes>` **Notes**, zero or more
- `<self-uri>` **URI for This Same Article Online**, zero or more
- `<custom-meta-group>` **Custom Metadata Group**, zero or one

8.4.148 `<journal-subtitle>` Journal Subtitle (Full)

Full subtitle of the journal in which the article was published.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**

- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.149 <journal-title> Journal Title (Full)

Full title of the journal in which the article was published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**

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- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.150 <journal-title-group> Journal Title Group

Container element for the titles of the journal in which the article was published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <journal-title> **Journal Title (Full)**, zero or more
- <journal-subtitle> **Journal Subtitle (Full)**, zero or more
- <trans-title-group> **Translated Title Group**, zero or more
- <abbrev-journal-title> **Abbreviated Journal Title**, zero or more

8.4.151 <kwd> Keyword

A keyword is a finding aid used to record one subject term, key phrase, abbreviation, indexing word, taxonomic structure, or other expression that is associated with a whole structure (such as an article). Keywords can be used for identification, searching, and indexing purposes. A keyword element (<kwd>) may contain a repetition of words found in the structure, or it may contain broader terms, narrower terms, related terms, or taxonomic identifiers used to find the structure in a search or provide semantic classification of the text by mapping a specific structure to a taxonomy.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**

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`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

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8.4.152 <kwd-group> Keyword Group

Container element for one set of keywords (such as <kwd>s, <nested-kwd>s, or <compound-kwd>s) used to describe a document.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@kwd-group-type **Type or Kind of Keywords in the Group**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any one of:
  - One or more of any of:
    - <kwd> **Keyword**
    - <compound-kwd> **Compound Keyword**
    - <nested-kwd> **Nested Keyword**
    - <x> **X - Generated Text and Punctuation**
  - <unstructured-kwd-group> **Unstructured Keyword Group**, zero or more

8.4.153 <label> Label (of an Equation, Figure, Reference, etc.)

Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**

- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.154 <license> License Information

Set of conditions under which the content may be used, accessed, and distributed.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@license-type **Type of License**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:
- One or more of any of:
  - ◦ <ali:license_ref> **License Reference (NISO and Access License Indicators)**
  - ◦ <license-p> **License Paragraph**

8.4.155 <license-p> License Paragraph

Paragraph of text within the description of a <license>.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
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- Other Inline Elements
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  - `<milestone-end>` **Milestone End**
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  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
  - <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- <price> **Price**

8.4.156 <list> List

Sequence of two or more items, which may or may not be ordered.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:

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- ◦ <list-item> **List Item**
- ◦ <x> **X - Generated Text and Punctuation**

8.4.157 <list-item> List Item

Single item (one entry) in a list of items.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
  - ◦ <p> **Paragraph**
  - ◦ Lists
    - ▪ <def-list> **Definition List**
    - ▪ <list> **List**

8.4.158 <long-desc> Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box, typically used to make the object accessible.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- <x> **X - Generated Text and Punctuation**

8.4.159 <lpage> Last Page

Page number on which a document ends.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.160 <media> Media Object

Description of and pointer to an external file that holds a media object (for example, an animation, a movie).

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- <abstract> **Abstract**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <caption> **Caption of a Figure, Table, etc.**
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <kwd-group> **Keyword Group**
- <subj-group> **Subject Group**
- <xref> **X (cross) Reference**

8.4.161 <meta-name> Metadata Data Name for Custom Metadata

Name of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**

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- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.162 <meta-value> Metadata Data Value for Custom Metadata

Value of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**

- ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.163 <milestone-end> Milestone End

End of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

This is an EMPTY element

8.4.164 <milestone-start> Milestone Start

Start of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

This is an EMPTY element

8.4.165 <mixed-citation> Mixed Citation

Bibliographic description of a work. Includes a combination of bibliographic reference elements and untagged text. Spacing and punctuation are preserved.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@use-type **Type of Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**

    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**

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- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.166 <mml:math> Math (MathML Tag Set)

Use documentation for the Mathematical Markup Language (MathML) Tag Set (https://www.w3.org/TR/MathML3/ or https://www.w3.org/TR/MathML2/).

Attributes:

@xmlns:mml **MathML Namespace Declaration**

8.4.167 <monospace> Monospace Text (Typewriter Text)

Used to mark text that should appear in a non-proportional font, such as courier.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**

    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.168 <month> Month

Names one of the months of the year, such as "July" or "07".

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

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8.4.169 <name> Name of Person

Container element for the component elements of personal names, such as a <surname>.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@name-style **Name Style**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- Any one of:
  - The following, in order:
    - <surname> **Surname**
    - <given-names> **Given (First) Names**, zero or one
  - <given-names> **Given (First) Names**
- <prefix> **Prefix**, zero or one
- <suffix> **Suffix**, zero or one

8.4.170 <name-alternatives> Name Alternatives

Container element for more than one version of a personal name, the element <name> (for example, the name written in both Japanese Kana characters and the Latin alphabet).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any one of:
- One or more of any of:
  - <name> **Name of Person**
  - <string-name> **Name of Person (Unstructured)**

8.4.171 <named-content> Named Special (Subject) Content

Word or phrase whose content/subject matter has distinct semantics or content-related significance.

Attributes:

@alt **Alternative Text**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**

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- ◦ <boxed-text> **Boxed Text**
- ◦ <chem-struct-wrap> **Chemical Structure Wrapper**
- ◦ <code> **Code**
- ◦ <explanation> **Explanation**
- ◦ <fig> **Figure**
- ◦ <fig-group> **Figure Group**
- ◦ <graphic> **Graphic**
- ◦ <media> **Media Object**
- ◦ <preformat> **Preformatted Text**
- ◦ <question> **Question**
- ◦ <question-wrap> **Question Wrapper**
- ◦ <question-wrap-group> **Question Wrapper Group**
- ◦ <supplementary-material> **Supplementary Material Metadata**
- ◦ <table-wrap> **Table Wrapper**
- ◦ <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

8.4.172 <nested-kwd> Nested Keyword

A hierarchically-structured keyword, such as a keywords from a controlled vocabulary.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

The following, in order:
- One or more of any of:
  - ◦ <kwd> **Keyword**
  - ◦ <compound-kwd> **Compound Keyword**
- <nested-kwd> **Nested Keyword**, zero or more

8.4.173 <nlm-citation> NLM Citation

This element is deprecated. Avoid using it; use <element-citation>.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**

`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:
- Any combination of:
  - `<person-group>` **Person Group for a Cited Publication**
  - `<collab>` **Collaborative (Group) Author**
- Any combination of:
  - `<article-title>` **Article Title**
  - `<trans-title>` **Translated Title**
- `<source>` **Source**, zero or one
- `<patent>` **Patent Number, Cited**, zero or one
- `<trans-source>` **Translated Source**, zero or one
- `<year>` **Year**, zero or one
- Any one of:
  - The following, in order:
    - `<month>` **Month**, zero or one
    - `<day>` **Day**, zero or one
    - `<time-stamp>` **Time Stamp for Cited Work**, zero or one
  - `<season>` **Season**, zero or one
- `<access-date>` **Access Date for Cited Work**, zero or one
- `<volume>` **Volume Number**, zero or one
- `<edition>` **Edition Statement, Cited**, zero or one
- `<conf-name>` **Conference Name**, zero or one
- `<conf-date>` **Conference Date**, zero or one
- `<conf-loc>` **Conference Location**, zero or one
- Any combination of:
  - `<issue>` **Issue Number**
  - `<supplement>` **Supplement Information**
- `<publisher-loc>` **Publisher's Location**, zero or one
- `<publisher-name>` **Publisher's Name**, zero or one
- Zero or more occurrences of the following, in order:
  - `<fpage>` **First Page**, zero or one
  - `<lpage>` **Last Page**, zero or one
- `<page-count>` **Page Count**, zero or one
- `<series>` **Series**, zero or one
- `<comment>` **Comment in a Citation**, zero or more
- `<pub-id>` **Publication Identifier for a Cited Publication**, zero or more
- `<annotation>` **Annotation in a Citation**, zero or one

8.4.174 `<note>` Note in a Reference List

Non-citation content inside a bibliographic reference list.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- One or more of any of:
  - `<p>` **Paragraph**
  - `<product>` **Product Information**

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8.4.175 <notes> Notes

Section-like container element for one or more notes that are not part of the narrative flow (for example, note added in proof, dedication).

Attributes:

@id **Document Internal Identifier**
@notes-type **Type of Notes**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <ack> **Acknowledgments**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - <x> **X - Generated Text and Punctuation**
- <sec> **Section**, zero or more
- Any combination of:
  - <notes> **Notes**
  - <fn-group> **Footnote Group**

- <glossary> **Glossary Elements List**
- <ref-list> **Reference List (Bibliographic)**

8.4.176 <object-id> Object Identifier

Unique identifier (such as a DOI or URI) for a component *within* an article (for example, for a figure or a table).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.177 <on-behalf-of> On Behalf of

When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work "on behalf of" that organization or group, and this element holds the name of the organization or group.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**

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- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

8.4.178 <open-access> Open Access

Open access provisions that apply to a work or the funding information that provided the open access provisions.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

8.4.179 <option> Answer Option (for a question)

One of the possible answer choices for a multiple-choice question.

Attributes:

@content-type **Type of Content**
@correct **Correct Option Flag**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - <address> **Address/Contact Information**

- <alternatives> **Alternatives For Processing**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <array> **Array (Simple Tabulation)**
- <block-alternatives> **Block-level Alternatives**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- <x> **X - Generated Text and Punctuation**
- <sec> **Section**, zero or more

- Any combination of:
  - <notes> **Notes**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**
- <explanation> **Explanation**, zero or more

8.4.180 <overline> Overline

Used to mark text that should appear with a horizontal line above each character.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**

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- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.181 <overline-end> Overline End

Milestone indicating the end of overline emphasis.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.182 <overline-start> Overline Start

Milestone indicating the beginning of overline emphasis.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.183 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements

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    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
    - <citation-alternatives> **Citation Alternatives**
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- Lists
    - <def-list> **Definition List**
    - <list> **List**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

8.4.184 <page-count> Page Count

Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

Attributes:

`@count` **Count**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

This is an EMPTY element

8.4.185 <page-range> Page Ranges

Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

8.4.186 <part-title> Part Title in a Citation

Title of a *portion* of a larger resource (for example, a chapter in a book, module in a course, episode of a podcast or television series) described in a bibliographic reference.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements

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- ◦ <inline-graphic> **Graphic, Inline**
- ◦ <inline-media> **Inline Media Object**
- ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.187 <patent> Patent Number, Cited

Identification information for a patent in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**

- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.188 <permissions> Permissions

Container element for copyright and license information for the entire article or for the object which contains the <permissions> element.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <copyright-statement> **Copyright Statement**, zero or more
- <copyright-year> **Copyright Year**, zero or more
- <copyright-holder> **Copyright Holder**, zero or more
- Any combination of:
  - <ali:free_to_read> **Free to Read (NISO Access and License Indicators)**
  - <license> **License Information**

8.4.189 <person-group> Person Group for a Cited Publication

Container element for one or more contributors in a bibliographic reference.

Attributes:

@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@person-group-type **Type of People in the Person Group**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Contributor Naming Elements
  - <anonymous> **Anonymous**
  - <collab> **Collaborative (Group) Author**
  - <collab-alternatives> **Collaboration Alternatives**
  - <name> **Name of Person**
  - <name-alternatives> **Name Alternatives**
  - <string-name> **Name of Person (Unstructured)**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <etal> **Et Al.**
- <role> **Role or Function Title of Contributor**
- <x> **X - Generated Text and Punctuation**

8.4.190 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**

- ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.191 <postal-code> Postal Code

A postal number such as a zip-code or postal code used to address physical mail.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

8.4.192 <prefix> Prefix

Honorifics or other qualifiers that usually precede a person's name (for example, Professor, Rev., President, Senator, Dr., Sir, The Honorable).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**

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- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

• <alternatives> **Alternatives For Processing**
• Inline Display Elements
- <inline-graphic> **Graphic, Inline**
- <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**

• Inline Math Elements
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**

• Math Elements
- <tex-math> **TeX Math Equation**
- <mml:math> **Math (MathML Tag Set)**

• Other Inline Elements
- <abbrev> **Abbreviation or Acronym**
- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <milestone-end> **Milestone End**
- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

• Internal Linking Elements
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

• Baseline Change Elements
- <sub> **Subscript**
- <sup> **Superscript**

• <x> **X - Generated Text and Punctuation**

8.4.193 <preformat> Preformatted Text

Text in which spaces, tabs, and line feeds must be preserved. Content is typically displayed in monofont to preserve character alignment.

Attributes:

@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@preformat-type **Type of Preformatted Text**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
- <alt-text> **Alternate Text Name (for a figure, etc.)**

    - <long-desc> **Long Description**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
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    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.194 <price> Price

Sale price or licensing fees of a work.

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Attributes:

`@content-type` **Type of Content**
`@currency` **Currency**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**

8.4.195 `<principal-award-recipient>` Principal Award Recipient

Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<contrib-id>` **Contributor Identifier**
- `<name>` **Name of Person**
- `<name-alternatives>` **Name Alternatives**
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**
- `<string-name>` **Name of Person (Unstructured)**

8.4.196 `<principal-investigator>` Principal Investigator

Individual(s) responsible for the intellectual content of the work reported in the document.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters

- <contrib-id> **Contributor Identifier**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <string-name> **Name of Person (Unstructured)**

8.4.197 <private-char> Private Character (Custom or Unicode)

Custom character supplied by a publisher, or a custom character from the Unicode private-use area, for which a bitmap or other representation of the glyph is included in or with the XML. The glyph may be represented as an inline graphic, an explicit bitmap glyph, or a reference to a previously defined character.

Attributes:

@description **Description of a Private Character**
@id **Document Internal Identifier**
@name **Name (Private Character)**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any one of:
- Any one of:
  - <glyph-data> **Glyph Data for a Private Character**
  - <glyph-ref> **Glyph Reference for a Private Character**
- <inline-graphic> **Graphic, Inline**, zero or more

8.4.198 <processing-meta> Processing Metadata

Optional container element, used to hold the processing metadata elements, which describe processing information descriptive of the XML-tagged document (document instance).

Attributes:

@base-tagset **Base Tag Set Name**
@id **Document Internal Identifier**
@math-representation **Math Representation in This Document**
@mathml-version **MathML Version**
@table-model **Table Model Used**
@tagset-family **JATS Tag Set Family**
@xml:base **Base**

Content model:

The following, in order:
- <restricted-by> **Restricted-by Model**, zero or more
- <extended-by> **Extended-by Model**, zero or more
- <custom-meta-group> **Custom Metadata Group**, zero or more

8.4.199 <product> Product Information

Container element for the metadata concerning one product (for example, a book, software package, website, or hardware component) discussed in an article.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@product-type **Type of Product**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**

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`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- `<break>` **Line Break**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<price>` **Price**
- `<annotation>` **Annotation in a Citation**
- `<article-title>` **Article Title**
- `<chapter-title>` **Chapter Title in a Citation**
- `<collab>` **Collaborative (Group) Author**
- `<collab-alternatives>` **Collaboration Alternatives**
- `<comment>` **Comment in a Citation**
- `<conf-acronym>` **Conference Acronym**
- `<conf-date>` **Conference Date**
- `<conf-loc>` **Conference Location**
- `<conf-name>` **Conference Name**
- `<conf-sponsor>` **Conference Sponsor**
- `<data-title>` **Data Title**

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- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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8.4.200 <pub-date> Publication Date

Container element for the parts of a single date associated with an article's publication (for example, date preprint was released, date article was published in print).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@calendar **Calendar**
@date-type **Type of Date**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@pub-type **Type of Publication**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- <string-date> **Date as a String**
- <x> **X - Generated Text and Punctuation**

8.4.201 <pub-date-not-available> Publication Date Not Available Flag

An empty element which signals that the publication date (<pub-date>) is not available. This does *not* mean the article is unpublished, merely that the publication date cannot be supplied.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.202 <pub-history> Publication History

Used as a container for events related to the processing history of the document, such as the date a manuscript was submitted, the reprint date for an article, etc.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any one of:

- <event> **Event in Publishing History**, one or more

8.4.203 <pub-id> Publication Identifier for a Cited Publication

Identifier of a publication in a bibliographic reference or product description.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@custom-type **Custom Attribute Value Escape Hatch**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**

`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

8.4.204 <publisher> Publisher

Container element for information about the person, company, or other entity that published a work.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any one of:
- The following sequence (in order), one or more times:
  - `<publisher-name>` **Publisher's Name**
  - `<publisher-loc>` **Publisher's Location**, zero or one

8.4.205 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - `<addr-line>` **Address Line**
  - `<city>` **City**
  - `<country>` **Country: in an Address**
  - `<fax>` **Fax Number: in an Address**
  - `<institution>` **Institution Name: in an Address**
  - `<institution-wrap>` **Institution Wrapper**
  - `<phone>` **Phone Number: in an Address**
  - `<postal-code>` **Postal Code**
  - `<state>` **State or Province**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**

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- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
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- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.206 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**

- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
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  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

8.4.207 <question> Question

A question (request for an answer) used in the text or as part of a quiz, exam, etc.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@question-response-type **Type of Answer(s) to be Given to the Question**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more

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- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - Paragraph-level Display Elements
        - <address> **Address/Contact Information**
        - <answer> **Answer to a Question**
        - <answer-set> **Answer Set**
        - <array> **Array (Simple Tabulation)**
        - <block-alternatives> **Block-level Alternatives**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <code> **Code**
        - <explanation> **Explanation**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
      - <alternatives> **Alternatives For Processing**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <ack> **Acknowledgments**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
      - <x> **X - Generated Text and Punctuation**
    - <sec> **Section**, zero or more
- <option> **Answer Option (for a question)**, zero or more
- Any combination of:
  - <notes> **Notes**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

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8.4.208 <question-preamble> Question Preamble

An element containing setup/preamble information that is shared by several questions. For example, a <question-preamble> might contain a diagram of a triangle (with several labeled parts) that is shared by questions such as "What is angle 'a'?", or "Given only the information in the diagram, can you calculate the length of the line from 'b' to 'd'?".

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <ack> **Acknowledgments**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - <x> **X - Generated Text and Punctuation**

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- <sec> **Section**, zero or more

8.4.209 <question-wrap> Question Wrapper

Wrapper element used to contain a question and its answers and/or explanations concerning the question.

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <question> **Question**
- Optionally any one of:
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
- <explanation> **Explanation**, zero or more

8.4.210 <question-wrap-group> Question Wrapper Group

A container element used to hold a group of <question-wrap> elements, for example, when all the questions share a common preamble (setup).

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- <question-preamble> **Question Preamble**, zero or one
- <question-wrap> **Question Wrapper**, one or more

8.4.211 <rb> Ruby Base Text

This element is one half of a Ruby annotation (<ruby>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (<rt>) should be applied.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**

- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.212 <ref> Reference Item

One item in a bibliographic list.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- One or more of any of:
  - Citation Elements
    - <citation-alternatives> **Citation Alternatives**
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**
  - <note> **Note in a Reference List**
  - <x> **X - Generated Text and Punctuation**

8.4.213 <ref-count> Reference Count

Number of references or citations that appear in a bibliographic reference list.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.214 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**

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- ◦ <alternatives> **Alternatives For Processing**
- ◦ <disp-formula> **Formula, Display**
- ◦ <disp-formula-group> **Formula, Display Group**
- ◦ Lists
  - ▪ <def-list> **Definition List**
  - ▪ <list> **List**
- ◦ Math Elements
  - ▪ <tex-math> **TeX Math Equation**
  - ▪ <mml:math> **Math (MathML Tag Set)**
- ◦ <p> **Paragraph**
- ◦ <related-article> **Related Article Information**
- ◦ <related-object> **Related Object Information**
- ◦ <ack> **Acknowledgments**
- ◦ <disp-quote> **Quote, Displayed**
- ◦ <speech> **Speech**
- ◦ <statement> **Statement, Formal**
- ◦ <verse-group> **Verse Form for Poetry**
- ◦ <x> **X - Generated Text and Punctuation**
- ◦ <ref> **Reference Item**
- <ref-list> **Reference List (Bibliographic)**, zero or more

8.4.215 <related-article> Related Article Information

Description of a journal article related to the content but published separately. May include a link to the related article.

Attributes:

@elocation-id **Elocation Identifier**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@issue **Issue Number of a Related Article**
@journal-id **Journal Identifier of a Related Article**
@journal-id-type **Type of Journal Identifier**
@page **Page of Related Article**
@related-article-type **Type of Related Article**
@specific-use **Specific Use**
@vol **Volume of Related Article**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- <break> **Line Break**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**

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    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- <journal-id> **Journal Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**

- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.216 <related-object> Related Object Information

Description of an object (for example, book, book chapter, figure, or table) related to the article content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Component Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@link-type **Type of Link (for a Related Object)**
@object-id **Object Identifier**
@object-id-type **Object Identifier Type**
@object-type **Object Type**
@source-id **Source Identifier**

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`@source-id-type` **Source Identifier Type**
`@source-type` **Source Type**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- `<break>` **Line Break**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<annotation>` **Annotation in a Citation**
- `<article-title>` **Article Title**
- `<chapter-title>` **Chapter Title in a Citation**

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- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**

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- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
- ◦ <sub> **Subscript**
- ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.217 <resource-group> Resource Group

Container element to hold the descriptions of specific resources supplied in the non-financial support of the work described in this article.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- One or more of any of:
- ◦ <resource-name> **Resource Name**
- ◦ <resource-wrap> **Resource Wrap**

8.4.218 <resource-id> Resource Identifier

An external, ideally machine-readable, identifier such as a Research Resource Identifier, for a specific resource provided in support of the work described in this article.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@resource-id-type **Resource Identifier Type**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

8.4.219 <resource-name> Resource Name

A displayable name of or description for a specific resource provided in support of the work described in this article.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

8.4.220 <resource-wrap> Resource Wrap

A wrapper element to hold together the name of a resource (<resource-name>) and one or more external identifiers for that resource (<resource-id>) such as a Research Resource Identifier.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <resource-name> **Resource Name**
- <resource-id> **Resource Identifier**, zero or more

8.4.221 <response> Response

Reply, response, or commentary concerning the journal article. In the typical case, the response is included in the same XML package as the original article, attached at the end of the article proper. Metadata that differs from that of the original article (for example, title, author) may be captured using the <front-stub> element; if the <front-stub> element is used, any metadata not specifically tagged is inherited from the original article.

Attributes:

@id **Document Internal Identifier**
@response-type **Type of Response**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- Any one of:
  - <front> **Front Matter**
  - <front-stub> **Stub Front Metadata**
- <body> **Body of the Document**, zero or one
- <back> **Back Matter**, zero or one
- <floats-group> **Floating Element Group**, zero or one

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8.4.222 <restricted-by> Restricted-by Model

Identification of one of the guidelines or other restrictions (such as a tighter subset schema) the document claims to be following.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

8.4.223 <role> Role or Function Title of Contributor

Title or role of a contributor to a work (for example, author, principle investigator, illustrator, research associate, conceptualization).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@degree-contribution **Degree of Contribution**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**

- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.224 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**

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- ◦ <fixed-case> **Fixed Case**
- ◦ <italic> **Italic**
- ◦ <monospace> **Monospace Text (Typewriter Text)**
- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.225 <rp> Ruby Parenthesis

Used to provide spacing or parenthesis to surround Ruby Text (<rt>), for older systems that do not handle Ruby formatting properly.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.226 <rt> Ruby Textual Annotation

This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be as small as a single character.

Attributes:

@content-type **Type of Content**

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

8.4.227 <ruby> Ruby Annotation Wrapper

An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains some of the document narrative text (inside a Ruby Base <rb> element) and applies/associates a Ruby Textual Annotation (inside an <rt> element to that base text.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

The following, in order:
- <rb> **Ruby Base Text**
- Any one of:
  - <rt> **Ruby Textual Annotation**
  - The following, in order:
    - <rp> **Ruby Parenthesis**
    - <rt> **Ruby Textual Annotation**
    - <rp> **Ruby Parenthesis**

8.4.228 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@toggle` **Toggle Switch**
`@xml:base` **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

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    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.229 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**

- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.230 <season> Season

Season of publication (for example, Spring, Third Quarter).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.231 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:

@disp-level **Display Level of a Heading**
@id **Document Internal Identifier**
@sec-type **Type of Section**

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`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<sec-meta>` **Section Metadata**, zero or one
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<answer>` **Answer to a Question**
    - `<answer-set>` **Answer Set**
    - `<array>` **Array (Simple Tabulation)**
    - `<block-alternatives>` **Block-level Alternatives**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<code>` **Code**
    - `<explanation>` **Explanation**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<question>` **Question**
    - `<question-wrap>` **Question Wrapper**
    - `<question-wrap-group>` **Question Wrapper Group**
    - `<supplementary-material>` **Supplementary Material Metadata**
    - `<table-wrap>` **Table Wrapper**
    - `<table-wrap-group>` **Table Wrapper Group**
  - `<alternatives>` **Alternatives For Processing**
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**
  - Lists
    - `<def-list>` **Definition List**
    - `<list>` **List**
  - Math Elements
    - `<tex-math>` **TeX Math Equation**
    - `<mml:math>` **Math (MathML Tag Set)**
  - `<p>` **Paragraph**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
  - `<ack>` **Acknowledgments**
  - `<disp-quote>` **Quote, Displayed**
  - `<speech>` **Speech**
  - `<statement>` **Statement, Formal**
  - `<verse-group>` **Verse Form for Poetry**
  - `<x>` **X - Generated Text and Punctuation**
- `<sec>` **Section**, zero or more
- Any combination of:
  - `<notes>` **Notes**
  - `<fn-group>` **Footnote Group**
  - `<glossary>` **Glossary Elements List**
  - `<ref-list>` **Reference List (Bibliographic)**

8.4.232 `<sec-meta>` Section Metadata

Container element for section-level metadata that is different from the parent document.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<contrib-group>` **Contributor Group**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- `<permissions>` **Permissions**, zero or one

8.4.233 `<see>` See

Used in an embedded index entry to hold preferred terms that make "See" references in a generated index.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements

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    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <array> **Array (Simple Tabulation)**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**

8.4.234 <see-also> See-Also

Used in an embedded index entry to hold preferred terms that make “See Also” references in a generated index.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**

- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.235 <self-uri> URI for This Same Article Online

URI for another version of a document. This element may be used when the document is available in multiple forms (for example, a printed article and in its expanded version with additional graphics available online).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**

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`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

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8.4.236 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

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- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.237 <series-text> Series Text: Header Text to Describe

Textual description of the series of articles that is named in a <series-title> element.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**

- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.238 <series-title> Series Title

Title of the journal series (bibliographic) or series of articles internal to one issue of a journal.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**

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- ◦ <index-term> **Index Term**
- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <milestone-end> **Milestone End**
- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.239 <sig> Signature

One contributor's signature and associated material (such as a text restatement of the affiliation) inside a signature block.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**

- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <graphic> **Graphic**
- <media> **Media Object**

8.4.240 <sig-block> Signature Block

Area of text and/or graphical material placed at the end of the body of a document or document component to hold the graphical signature or description of the person(s) responsible for or attesting to the content.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**

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- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <contrib> **Contributor**
- <graphic> **Graphic**
- <media> **Media Object**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <etal> **Et Al.**
- <role> **Role or Function Title of Contributor**
- <sig> **Signature**

8.4.241 <size> Size

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@units **Units**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**

- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <x> **X - Generated Text and Punctuation**

8.4.242 <source> Source

Title of the resource (for example, journal, book, podcast, conference proceedings, radio or TV show) that contains (is the source of) the material being cited in a bibliographic reference or product. In the case of a resource that has titles at multiple hierarchical levels, this is the title of the largest titled resource (e.g., the TV show name and not the episode title).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**

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    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.243 <speaker> Speaker

One who utters one segment of a speech or dialog.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**

- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**

8.4.244 <speech> Speech

One exchange (a single speech) in a real or imaginary conversation between two or more entities.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <speaker> **Speaker**
- <p> **Paragraph**, one or more

8.4.245 <state> State or Province

The name of a state, province, territory, or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, district, or parish. The names for such a unit vary geopolitically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Text, numbers, or special characters, zero or more

8.4.246 <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- One or more of any of:
  - <p> **Paragraph**
  - <statement> **Statement, Formal**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.247 <std> Standard, Cited

Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**

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- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <day> **Day**
- <month> **Month**
- <pub-id> **Publication Identifier for a Cited Publication**
- <source> **Source**
- <std-organization> **Standards Organization**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

8.4.248 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**

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- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <break> **Line Break**

8.4.249 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**

- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.250 <string-conf> String Conference Name

Sequence and flow of an extended conference name (for example, “The Learned Society’s Conference on What’s Hot at the University of Wherever on 21–27 July 2011”).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**

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- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <conf-date> **Conference Date**
- <conf-name> **Conference Name**
- <conf-num> **Conference Number**
- <conf-loc> **Conference Location**
- <conf-sponsor> **Conference Sponsor**
- <conf-theme> **Conference Theme**
- <conf-acronym> **Conference Acronym**
- <string-conf> **String Conference Name**

8.4.251 <string-date> Date as a String

Date represented as text.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**

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8.4.252 <string-name> Name of Person (Unstructured)

Container element for personal names captured with mixed-content where the order of the name components is not enforced.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@name-style **Name Style**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**

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- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
- ◦ <sub> **Subscript**
- ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**

8.4.253 <styled-content> Styled Special (Subject) Content

Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace, or any of the other emphasis elements; and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@toggle **Toggle Switch**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
- ◦ <email> **Email Address**
- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
- ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
- ◦ <related-article> **Related Article Information**
- ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
- ◦ <bold> **Bold**
- ◦ <fixed-case> **Fixed Case**
- ◦ <italic> **Italic**
- ◦ <monospace> **Monospace Text (Typewriter Text)**
- ◦ <overline> **Overline**
- ◦ <overline-start> **Overline Start**
- ◦ <overline-end> **Overline End**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <underline-start> **Underline Start**
- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
- ◦ <inline-graphic> **Graphic, Inline**

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    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
    - <def-list> **Definition List**
    - <list> **List**
- <ack> **Acknowledgments**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

8.4.254 <sub> Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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- <break> **Line Break**

8.4.255 <sub-article> Sub-article

An article that is completely contained inside another article.

Attributes:

@article-type **Type of Article**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- Any one of:
  - <front> **Front Matter**
  - <front-stub> **Stub Front Metadata**
- <body> **Body of the Document**, zero or one
- <back> **Back Matter**, zero or one
- <floats-group> **Floating Element Group**, zero or one
- Any one of:
  - <sub-article> **Sub-article**, zero or more
  - <response> **Response**, zero or more

8.4.256 <subj-group> Subject Group

Container element for the subject matter designations describing a document's content or a component document's content. Subjects are used to organize documents into groupings (potentially hierarchical groupings) for display or print.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@subj-group-type **Type of Subject Group**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- One or more of any of:
  - <subject> **Subject Grouping Name**
  - <compound-subject> **Compound Subject Name**
- <subj-group> **Subject Group**, zero or more

8.4.257 <subject> Subject Grouping Name

Name of one subject or topic used to describe an article. Such topics and groupings of topics are typically used to provide headings for groups of documents or document components in a printed, or online, generated Table of Contents.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**

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`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

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8.4.258 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

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- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.259 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**

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- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.260 <sup> Superscript

Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**

- ◦ <index-term> **Index Term**
- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <milestone-end> **Milestone End**
- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.261 <supplement> Supplement Information

Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**

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- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <contrib-group> **Contributor Group**
- <title> **Title**

8.4.262 <supplementary-material> Supplementary Material Metadata

Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**

    - Linking Elements
      - <email> **Email Address**
      - <ext-link> **External Link**
      - <uri> **Uniform Resource Identifier (URI)**
- Any combination of:
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <disp-quote> **Quote, Displayed**
    - <speech> **Speech**
    - <statement> **Statement, Formal**
    - <verse-group> **Verse Form for Poetry**
    - <table-wrap> **Table Wrapper**
    - <p> **Paragraph**
    - Lists
      - <def-list> **Definition List**
      - <list> **List**
    - <alternatives> **Alternatives For Processing**
    - <array> **Array (Simple Tabulation)**
    - <code> **Code**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <xref> **X (cross) Reference**
- Any combination of:
    - Ownership Elements
      - <attrib> **Attribution**
      - <permissions> **Permissions**

8.4.263 <support-description> Support Description

A displayable prose statement that describes some non-financial support given for the research on which a work was based.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

8.4.264 <support-group> Support Group

Container element for information concerning both funding and non-monetary support for the research reported in the work (typically an article). This includes both monetary awards, grants, investigators, etc. and also facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <funding-group> **Funding Group**, zero or more
- <contributed-resource-group> **Contributed Resource Group**, zero or more

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8.4.265 <support-source> Support Source

Agency or organization (such as a foundation, corporation, or an educational institution) that provided non-monetary support (such as facilities or data) in support of the research on which a work was based.

Attributes:

@country **Country**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@support-type **Type of Support Provided**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements

- <abbrev> **Abbreviation or Acronym**
- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <milestone-end> **Milestone End**
- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

• Internal Linking Elements
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

• Baseline Change Elements
- <sub> **Subscript**
- <sup> **Superscript**

• <x> **X - Generated Text and Punctuation**
• <institution> **Institution Name: in an Address**
• <institution-wrap> **Institution Wrapper**

8.4.266 <surname> Surname

Surname of a person.

Attributes:

@id **Document Internal Identifier**
@initials **Initials for Personal Names**
@xml:base **Base**

Content model:

Any combination of:

• Text, numbers, or special characters
• Linking Elements
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**

• Related Material Elements
- <inline-supplementary-material> **Inline Supplementary Material Metadata**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**

• <hr> **Horizontal Rule**
• Emphasis Elements
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <overline-start> **Overline Start**
- <overline-end> **Overline End**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <underline-start> **Underline Start**
- <underline-end> **Underline End**
- <ruby> **Ruby Annotation Wrapper**

• <alternatives> **Alternatives For Processing**
• Inline Display Elements
- <inline-graphic> **Graphic, Inline**
- <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**

• Inline Math Elements
- <chem-struct> **Chemical Structure (Display)**

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- ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.267 <table> Table (NISO JATS table model)

The rows and columns part of a full table. (This element is based on and intended to be converted easily to the XHTML table element.)

Attributes:

@border **Border (Frame) around a Table (NISO JATS table model)**
@cellpadding **Cell Padding (NISO JATS table model)**
@cellspacing **Cell Spacing (NISO JATS table model)**
@content-type **Type of Content**
@frame **Frame (NISO JATS table model)**
@id **Document Internal Identifier**
@rules **Rules (NISO JATS table model)**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@summary **Summary (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

The following, in order:
- Any one of:
  - ◦ <col> **Table Column (NISO JATS table model)**, zero or more
  - ◦ <colgroup> **Table Column Group (NISO JATS table model)**, zero or more
- Any one of:
  - ◦ The following, in order:
    - ▪ <thead> **Table Header (NISO JATS table model)**, zero or one
    - ▪ <tfoot> **Table Footer (NISO JATS table model)**, zero or one
    - ▪ <tbody> **Table Body (NISO JATS table model)**, one or more
  - ◦ <tr> **Table Row (NISO JATS table model)**, one or more

8.4.268 <table-count> Table Count

Number of <table-wrap> elements that appear in the document.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.269 <table-wrap> Table Wrapper

Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Any combination of:
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <alternatives> **Alternatives For Processing**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <disp-formula> **Formula, Display**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <table> **Table (NISO JATS table model)**
  - <xref> **X (cross) Reference**
- Any combination of:
  - <table-wrap-foot> **Table Wrapper Footer**
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.270 <table-wrap-foot> Table Wrapper Footer

Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

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Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- One or more of any of:
  - `<p>` **Paragraph**
  - `<fn-group>` **Footnote Group**
  - `<fn>` **Footnote**
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**
  - `<x>` **X - Generated Text and Punctuation**

8.4.271 `<table-wrap-group>` Table Wrapper Group

Container element for tables (`<table-wrap>` elements) that are to be displayed together.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- `<caption>` **Caption of a Figure, Table, etc.**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- One or more of any of:
  - `<table-wrap>` **Table Wrapper**
  - `<xref>` **X (cross) Reference**

8.4.272 `<target>` Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@target-type` **Type of Target**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.273 <tbody> Table Body (NISO JATS table model)

Container element that holds the rows and columns in one of the *body* (as opposed to the *header*) portions of a table.

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**

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`@char` **Table Cell Alignment Character (NISO JATS table model)**
`@charoff` **Table Character Offset (NISO JATS table model)**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@xml:base` **Base**

Content model:

`<tr>` **Table Row (NISO JATS table model)**, one or more

8.4.274 `<td>` Table Data Cell (NISO JATS table model)

One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML `td` element.)

Attributes:

`@abbr` **Abbreviation (NISO JATS table model)**
`@align` **Horizontal Alignment (NISO JATS table model)**
`@axis` **Axis (NISO JATS table model)**
`@char` **Table Cell Alignment Character (NISO JATS table model)**
`@charoff` **Table Character Offset (NISO JATS table model)**
`@colspan` **Column Span (NISO JATS table model)**
`@content-type` **Type of Content**
`@headers` **Headers (NISO JATS table model)**
`@id` **Document Internal Identifier**
`@rowspan` **Row Span (NISO JATS table model)**
`@scope` **Scope (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements

- ◦ <inline-graphic> **Graphic, Inline**
- ◦ <inline-media> **Inline Media Object**
- ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- Citation Elements
  - ◦ <citation-alternatives> **Citation Alternatives**
  - ◦ <element-citation> **Element Citation**
  - ◦ <mixed-citation> **Mixed Citation**
  - ◦ <nlm-citation> **NLM Citation**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- <p> **Paragraph**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <explanation> **Explanation**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.275 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

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Attributes:

`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@term-status` **Term Status**
`@term-type` **Type of Term**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements

- ◦ <fn> **Footnote**
- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.276 <term-head> Definition List: Term Head

Heading over the first column (the term column) of a definition list (two-part list).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**

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    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.277 <tex-math> TeX Math Equation

Used to hold encoded math, expressed in TeX or LaTeX.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@notation **Notation**
@specific-use **Specific Use**
@version **Version of TeX or LaTeX**
@xml:base **Base**

Content model:

Text, numbers, or special characters

8.4.278 <textual-form> Textual Form

Textual form provides a place to hold a textual equivalent or searchable textual version of a complex structure such as an equation or a graphical object. The complex object and the textual equivalent are associated with each other by putting them in the same alternatives wrapper.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**

- ◦ <underline-end> **Underline End**
- ◦ <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

8.4.279 <tfoot> Table Footer (NISO JATS table model)

The footer rows and columns within a NISO JATS table. (This element is based on and intended to be converted easily to the XHTML tfoot element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

8.4.280 <th> Table Header Cell (NISO JATS table model)

One cell in the table header, as opposed to an ordinary cell in the body of a table. (This element is based on and intended to be converted easily to the XHTML th element.)

Attributes:

@abbr **Abbreviation (NISO JATS table model)**
@align **Horizontal Alignment (NISO JATS table model)**
@axis **Axis (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@colspan **Column Span (NISO JATS table model)**
@content-type **Type of Content**
@headers **Headers (NISO JATS table model)**
@id **Document Internal Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**

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- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

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- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <p> **Paragraph**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <explanation> **Explanation**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.281 <thead> Table Header (NISO JATS table model)

Container element for the table header rows of a table. (This element is based on and intended to be converted easily to the XHTML thead element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

8.4.282 <time-stamp> Time Stamp for Cited Work

This element is deprecated. Avoid using it; use <date-in-citation>.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- <x> **X - Generated Text and Punctuation**

8.4.283 <title> Title

Heading or title for a structural element (for example, <sec>, <app>, <boxed-text>).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**

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8.4.284 <title-group> Title Group

Container element to hold the various titles for a document or a document component.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <article-title> **Article Title**
- <subtitle> **Document Subtitle**, zero or more
- <trans-title-group> **Translated Title Group**, zero or more
- <alt-title> **Alternate Title**, zero or more
- <fn-group> **Footnote Group**, zero or one

8.4.285 <tr> Table Row (NISO JATS table model)

Container element for all the cells in a single table row. (This element is based on and intended to be converted easily to the XHTML tr element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

One or more of any of:
- <th> **Table Header Cell (NISO JATS table model)**
- <td> **Table Data Cell (NISO JATS table model)**

8.4.286 <trans-abstract> Translated Abstract

Abstract that has been translated into a language other than that in which the work was originally published.

Attributes:

@abstract-type **Type of Abstract**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- The following, in order:
  - <sec-meta> **Section Metadata**, zero or one
  - <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
  - <title> **Title**, zero or one
  - Any combination of:
    - Paragraph-level Display Elements
      - <address> **Address/Contact Information**
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <array> **Array (Simple Tabulation)**
      - <block-alternatives> **Block-level Alternatives**
      - <boxed-text> **Boxed Text**
      - <chem-struct-wrap> **Chemical Structure Wrapper**

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- <code> **Code**
- <explanation> **Explanation**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

▪ <alternatives> **Alternatives For Processing**
▪ <disp-formula> **Formula, Display**
▪ <disp-formula-group> **Formula, Display Group**
▪ Lists
- <def-list> **Definition List**
- <list> **List**

▪ Math Elements
- <tex-math> **TeX Math Equation**
- <mml:math> **Math (MathML Tag Set)**

▪ <p> **Paragraph**
▪ <related-article> **Related Article Information**
▪ <related-object> **Related Object Information**
▪ <ack> **Acknowledgments**
▪ <disp-quote> **Quote, Displayed**
▪ <speech> **Speech**
▪ <statement> **Statement, Formal**
▪ <verse-group> **Verse Form for Poetry**
▪ <x> **X - Generated Text and Punctuation**

◦ <sec> **Section**, zero or more
◦ Any combination of:
▪ <notes> **Notes**
▪ <fn-group> **Footnote Group**
▪ <glossary> **Glossary Elements List**
▪ <ref-list> **Reference List (Bibliographic)**

8.4.287 <trans-source> Translated Source

Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**

    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.288 <trans-subtitle> Translated Subtitle

Document or document component subtitle that has been translated into a language other than that of the original document or document component subtitle.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters

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- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.289 <trans-title> Translated Title

Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

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- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.290 <trans-title-group> Translated Title Group

Container element for translated and transliterated titles.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <trans-title> **Translated Title**
- <trans-subtitle> **Translated Subtitle**, zero or more

8.4.291 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@underline-style **Appearance of the Underline**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**

- ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.292 <underline-end> Underline End

Milestone indicating the end of underlined text.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.293 <underline-start> Underline Start

Milestone indicating the start of underlined text.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.294 <unstructured-kwd-group> Unstructured Keyword Group

Container element for one set of keywords used to describe a document, where the individual keywords are not tagged as separate <kwd>s but instead are all run together in one long text field.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@kwd-group-type **Type or Kind of Keywords in the Group**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**

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`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

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8.4.295 <uri> Uniform Resource Identifier (URI)

Identifies a Uniform Resource Identifier (such as a URL) that may be used as a live link, typically naming a website (such as: <uri>https://www.mulberrytech.com</uri>).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements

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- <abbrev> **Abbreviation or Acronym**
- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <milestone-end> **Milestone End**
- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.296 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or one
- One or more of any of:
  - <verse-line> **Line of a Verse**
  - <verse-group> **Verse Form for Poetry**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.297 <verse-line> Line of a Verse

One line of a poem or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@indent-level **Indentation Level**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements

- ◦ <email> **Email Address**
- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.298 <version> Version Statement

A full version statement, which may be only a number, for data or software that is cited or described.

Attributes:

@content-type **Type of Content**
@designator **Designator**
@id **Document Internal Identifier**
@specific-use **Specific Use**

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`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<underline-start>` **Underline Start**
  - `<underline-end>` **Underline End**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
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  - `<index-term>` **Index Term**
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  - `<milestone-end>` **Milestone End**
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- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

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8.4.299 <volume> Volume Number

Number of a journal (or other document) within a series.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
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- <hr> **Horizontal Rule**
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  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.300 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements

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    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**

8.4.301 <volume-issue-group> Volume Issue Grouping

A grouping element to hold related volume and issue elements.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <volume> **Volume Number**, zero or more
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or more
- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-title-group> **Issue Title Group**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one

8.4.302 <volume-series> Volume Series

Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**

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- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <overline-start> **Overline Start**
  - ◦ <overline-end> **Overline End**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <underline-start> **Underline Start**
  - ◦ <underline-end> **Underline End**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.303 <word-count> Word Count

The approximate number of words that appear in a document or document component.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

8.4.304 <x> X - Generated Text and Punctuation

Generated text or punctuation. Typically used when:

- an archive decides not to have text generated on display and thus to pre-generate such things as commas or semicolons between keywords, or
- an archive receives text with <x> tags embedded and wishes to retain them.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.305 <xref> X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

@alt **Alternative Text**
@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@ref-type **Type of Cross-Reference**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

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- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <underline-start> **Underline Start**
  - <underline-end> **Underline End**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.306 <year> Year

Representation, usually numerical, of a calendar year.

Attributes:

@calendar **Calendar**

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:
Text, numbers, or special characters

8.5 Attributes

Each attribute in this Tag Set is listed and identified, and specifics of the model of the attribute in this Tag Set are provided.

Each attribute is identified with a name, expanded information name, and definition, as it is listed in Section 7, *Tag Suite Components*. For some attributes a "Usage" section provides additional information on how the attribute is intended to be used or interpreted.

Following that appears the modeling information specific to this Tag Set. For attributes that are associated with only one element, or for which the usage is the same for all elements in the Tag Set, there appears:

- a list of all of the elements associated with the attribute;
- an optionality description:
  - "this attribute may be used if the element is used" means the attribute is optional;
  - "this attribute must be used if the element is used" means the attribute is required;
  - "this attribute must have the value …" means that the attribute has a fixed value.
- a table showing the allowed value(s) of the attribute and describing the meaning of each value. If there is a default value, that value appears in bold.

If there is more than one element associated with an attribute in the Tag Set and those elements use the attribute differently (for example, one element provides a default value for the attribute and on other elements there is no default value), the specifics are repeated for each group of elements that has the same usage and values for the attribute.

8.5.1 `@abbr` Abbreviation (NISO JATS table model)

An abbreviated version of the cell's content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell's header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHTML `abbr` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A brief note of what is in the cell, mostly for use by accessibility software.

8.5.2 `@abbrev-type` Type of Journal Title Abbreviation

Identifier of the authority that defined the abbreviation (for example, "`nlm-ta`" for an NLM title abbreviation, "`publisher`" for a publisher-specific abbreviation).

In element `<abbrev-journal-title>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A name, acronym, or descriptive word naming the authority responsible for the abbreviation, for example, "`publisher`", meaning that the publisher of the article assigned the abbreviation.

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8.5.3 `@abstract-type` Type of Abstract

Type or style of abstract as identified by the publisher (for example, "`short`", "`graphic`", "`ASCII`", "`stereochemical`").

In elements `<abstract>` and `<trans-abstract>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Brief name for the type of abstract, such as "`short`".

8.5.4 `@align` Horizontal Alignment (NISO JATS table model)

Sets the horizontal (line) alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `align` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
center	Center align the cell contents.
char	Align the text on the character identified with the `@char` attribute.
justify	Fully justify cell contents (right and left justification).
left	Left justify cell contents.
right	Right justify cell contents.

8.5.5 `@alt` Alternative Text

Word or phrase that serves as a textual alternative for the element.

In elements `<abbrev>`, `<label>`, `<named-content>`, `<styled-content>`, and `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Simple words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

8.5.6 `@alt-title-type` Type of Alternate Title

Reason for or purpose of an alternate title (for example, "`toc`" for a title used in a Table of Contents, "`rt-running`" for a right-running-head title for print).

In element `<alt-title>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase describing the rationale for this version of the title, for example, "`right-running-head`".

8.5.7 `@arrange` Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts and superscripts applying to the same character should stack (be placed one above the other as compactly as possible) or stagger (be stretched out in a line).

In elements `<sub>` and `<sup>`, this attribute *may* be used if the element is used.

Value	Meaning
stack	The multiple subscripts and superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts and superscripts should be stretched out in a line.

8.5.8 `@article-type` Type of Article

Type or kind of article (for example, "`research`", "`commentary`", "`review`", "`case`", or "`calendar`").

In elements `<article>` and `<sub-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of article, for example, "`research-article`".

8.5.9 `@article-version-type` Type of the Article Version Statement

This `@article-version-type` identifies the type of information contained in the `<article-version>` element.

In element `<article-version>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of version number or version status identifier that identifies this version of the article.

8.5.10 `@assigning-authority` Authority Responsible for an Identifier

Names the authority that assigned or administers an identifier used in this document, for example, Crossref, GenBank, or PDB.

In elements `<article-id>`, `<article-version>`, `<award-id>`, `<compound-kwd>`, `<compound-subject>`, `<contrib-id>`, `<custom-meta>`, `<ext-link>`, `<extended-by>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issn-l>`, `<issue-id>`, `<journal-id>`, `<kwd>`, `<kwd-group>`, `<nested-kwd>`, `<object-id>`, `<pub-date>`, `<pub-id>`, `<resource-id>`, `<restricted-by>`, `<role>`, `<self-uri>`, `<subj-group>`, `<subject>`, `<unstructured-kwd-group>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name of the organization assigning the identifier, such as "`ORCID`" or "`ISNI`"

8.5.11 `@audience` Audience for the Question

Names the perspective audience for the question(s).

In elements `<question-wrap>` and `<question-wrap-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Short description of the intended audience, for example, "`patients`", "`dermatology-students`".

8.5.12 `@authenticated` Authenticated

The authority associated with this ID type (named in `@contrib-id-type`) has authenticated the value of this ID.

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In element <contrib-id>, this attribute will be assigned the value false by default.

Value	Meaning
true	This contributor identifier has been marked by the issuing authority as authenticated.
false	No guarantee has been made about this contributor identifier.

8.5.13 @award-id-type Type of Identifier for an Award

Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

In element <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

8.5.14 @award-type Type of Award

Type or kind of award (for example, "grant" or "contract").

In elements <award-group> and <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of award, such as "contract" or "grant".

8.5.15 @axis Axis (NISO JATS table model)

A method of categorizing table cells. The value of this attribute should be one or more category names. (This attribute is based on and intended to be converted easily to the XHTML axis attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the conceptual axis or a comma-separated list of axis names.

8.5.16 @base-tagset Base Tag Set Name

Which of the JATS standard tag sets is the basis for this document?

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
archiving	Journal Archiving and Interchange Tag Set (Green)
authoring	Article Authoring Tag Set (Pumpkin)
publishing	Journal Publishing Tag Set (Blue)

8.5.17 @baseline-shift Baseline Shift

The position of an inline graphic with respect to the current text baseline (above, on, or below the baseline).

In element <inline-graphic>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the position of the inline graphic.

8.5.18 `@border` Border (Frame) around a Table (NISO JATS table model)

Thickness, in pixels, of the border to draw around the table. A value of "`0`" indicates that the table has no border. (This attribute is based on and intended to be converted easily to the XHTML `border` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the border around the table.

8.5.19 `@calendar` Calendar

Name of the calendar used in naming a date such as a publication date, for example, "`Gregorian`", "`Japanese`" (Emperor years), or "`Thai Buddha`".

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, `<pub-date>`, `<string-date>`, and `<year>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name of the calendar used in the date, for example: "`Gregorian`", "`Japanese`", or "`Chinese`".

8.5.20 `@cellpadding` Cell Padding (NISO JATS table model)

Amount of space, measured in pixels, between the border of a cell and the contents of a table cell. (This attribute is based on and intended to be converted easily to the XHTML `cellpadding` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the cell padding.

8.5.21 `@cellspacing` Cell Spacing (NISO JATS table model)

Width of space between cells in a table. (This attribute is based on and intended to be converted easily to the XHTML `cellspacing` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the space between cells in a table.

8.5.22 `@char` Table Cell Alignment Character (NISO JATS table model)

The character to be used in horizontal alignment of the contents of an entry in a table. The content of a table data or table header element is to be aligned horizontally based on the character named in this attribute, for example, alignment on a period for decimal alignment or on an equal sign for alignment of variables. (This attribute is based on and intended to be converted easily to the XHTML `char` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	When used in conjunction with `align="char"`, the contents of the table entry are aligned relative to the character specified by this attribute.

8.5.23 `@charoff` Table Character Offset (NISO JATS table model)

Horizontal offset from the alignment character specified by the `@char` attribute; the percent of the current column width to the left of the (left edge of the) alignment character. (This attribute is based on and intended to be converted easily to the XHTML `charoff` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	Where to set the alignment. Although this Tag Set can enforce only that this attribute contain any characters, validation beyond the DTD (for example, schema validation or Schematron validation) can constrain this value to a counting number (positive integer).

8.5.24 `@code-type` Type of Code

The type of this code, used to categorize or describe the code.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.

8.5.25 `@code-version` Code Version

Version of this program or code fragment.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Version of the program (code) that is shown inside the `<code>` element, for example, “`25.1 second patch`”.

8.5.26 `@collab-type` Type of Collaboration

Type or role of the collaborators; what function they played in the publication (for example, “`translators`”, “`editors`”).

In element `<collab>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that describes the role that the collaborators played in the publication, for example, “`authors`”.

8.5.27 `@colspan` Column Span (NISO JATS table model)

Table attribute used to request horizontal spanning of more than one column. (This attribute is based on and intended to be converted easily to the XHTML `colspan` attribute.)

In elements `<td>` and `<th>`, this attribute will be assigned the value `1` by default.

Value	Meaning
Counting number	How many column widths this cell will span, for example, “`3`”.

8.5.28 `@content-type` Type of Content

Subject or type of content that makes this element semantically distinct.

In element `<contrib-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the shared role for the contributors within the `<contrib-group>` element (in the same way that the attribute `@contrib-type` does for a single contributor>).

In element `<role>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes a distinct semantic role of the contributor (person or collaboration) in the research behind the article or in the article itself. If the contributor played more than one role in the creation of an article, the `<role>` element should be repeated with a different value for this attribute.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	May be used to name stages in the lifecycle of a related object such as a book, with values such as "`preprint`" or "`version-of-record`". Note that these are lifecycle values describing a related object that is not a journal article, for example, a dataset, book, podcast, or chart.

In element `<named-content>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the semantic function for the particular `<named-content>` element. These elements mark up material that cannot otherwise be described semantically by the elements in this Suite. For example, a medical article might use a `@content-type` value "`body-system`" or "`gene`" while a management article might use a `@content-type` value "`product-name`" or "`stock-code`".

In elements `<abbrev>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<annotation>`, `<answer>`, `<answer-set>`, `<app>`, `<app-group>`, `<array>`, `<article-version>`, `<author-comment>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chem-struct>`, `<chem-struct-wrap>`, `<city>`, `<col>`, `<colgroup>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<compound-subject>`, `<compound-subject-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<corresp>`, `<country>`, `<custom-meta-group>`, `<data-title>`, `<date-in-citation>`, `<day>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<elocation-id>`, `<email>`, `<era>`, `<explanation>`, `<fax>`, `<fig-group>`, `<fixed-case>`, `<fn-group>`, `<fpage>`, `<glossary>`, `<gov>`, `<graphic>`, `<index-term>`, `<inline-formula>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-sponsor>`, `<issue-subtitle>`, `<issue-title>`, `<issue-title-group>`, `<journal-subtitle>`, `<journal-title>`, `<journal-title-group>`, `<kwd>`, `<license-p>`, `<long-desc>`, `<lpage>`, `<media>`, `<milestone-end>`, `<milestone-start>`, `<month>`, `<name>`, `<nested-kwd>`, `<note>`, `<object-id>`, `<option>`, `<p>`, `<page-range>`, `<patent>`, `<phone>`, `<postal-code>`, `<prefix>`, `<price>`, `<publisher>`, `<question>`, `<question-preamble>`, `<question-wrap>`, `<question-wrap-group>`, `<rb>`, `<ref>`, `<ref-list>`, `<resource-id>`, `<resource-name>`,

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<rt>, <ruby>, <season>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-conf>, <string-date>, <string-name>, <subject>, <subtitle>, <suffix>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <tex-math>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <tr>, <trans-source>, <trans-title>, <trans-title-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <x>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes any distinct semantics of the associated element. This may be used to preserve the semantic intent of prior tagging, for example, to record that a table cell was a total or subtotal amount. This may also be used to attach information classes to an element for retrieval purposes.

8.5.29 `@continued-from` Continued From

ID of a list which the current list continues; used to connect discontiguous lists that form one logical list.

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

8.5.30 `@contrib-id-type` Contributor Identifier Type

Names the type of contributor identifier, such as an ORCID or a ScopusID.

In element <contrib-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of contributor identifier or the authority (such as a publisher or industry organization) that is responsible for the creation of the contributor identifier, for example, "ORCID" or "JST".

8.5.31 `@contrib-type` Type of Contribution

Type of contribution made by the individual (for example, "author", "editor", "translator", "research-assistant").

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase naming or describing the contribution, such as "author".

8.5.32 `@correct` Correct Option Flag

Marks a multiple-choice option as correct or incorrect.

In element <option>, this attribute *may* be used if the element is used.

Value	Meaning
no	This answer is incorrect.
yes	This answer is correct.

8.5.33 `@corresp` Corresponding Author

Indicates whether or not the contributor is the corresponding contributor for the content.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	This author (or other contributor) is not a corresponding author.
yes	This author (or other contributor) is a corresponding author.

8.5.34 `@count` Count

Number of specific objects that appear in the document.

In elements <count>, <equation-count>, <fig-count>, <page-count>, <ref-count>, <table-count>, and <word-count>, this attribute *must* be used if the element is used.

Value	Meaning
Counting number	The number of objects being counted, for example, "5" for five tables or five figures.

8.5.35 `@count-type` Count Type

Names what is being counted by the <count> element, for example, images, contributors, algorithms, etc.

In element <count>, this attribute *must* be used if the element is used.

Value	Meaning
The name of an object, element, structure	The object being counted, for example, "contributors" when counting the number of authors or "images" for the number of images.

8.5.36 `@country` Country

An abbreviation or code that names a country. This is information that can be used to identify a country that granted a patent or to provide a machine-comparable form of the name of a country as an addition to the content of the <country> element.

In elements <country>, <funding-source>, <patent>, and <support-source>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a country, typically using the ISO 3166-1 two-letter alphabetic codes, for example, "US" for the United States of America.

8.5.37 `@currency` Currency

Type of currency in which the price is presented.

In element <price>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a currency, typically using the ISO 4217 three-letter alphabetic codes, for example, "USD" for the United States Dollar.

8.5.38 `@custom-type` Custom Attribute Value Escape Hatch

Used in the same attribute list as an attribute with a set list of values, to provide a way for the content creator to say "my attribute value is not on the set list".

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In elements <article-id>, <fn>, <person-group>, <pub-id>, and <xref>, this attribute *may* be used if the element is used.

Value	Meaning
The value of the type attribute for the element to which this attribute is attached. Used only when the value is not found in a set list of values.	The @custom-type is used in versions of JATS that have a static list of values for some attribute, for example, for the @fn-type attribute. To add a value to such a list, the @fn-type attribute is given the type "custom" and a separate @custom-type attribute provides the typing value. There is no need for such a typing mechanism in Archiving, since there are no restrictions on the value of the attributes that share an attribute list with @custom-type. Nevertheless, the value "custom" and the attribute @custom-type have both been included in Archiving so that documents valid to a stricter version of the JATS Tag Set will also be valid to Archiving.

8.5.39 @date-type Type of Date

Event in the lifecycle of an object that this date is marking (for example, for an article, dates such as the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In elements <date> and <pub-date>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a word or phrase that names or describes the purpose of a date, for example, "received" for the date a manuscript was received or "corrected" for the date a document was corrected.

8.5.40 @deceased Deceased

Indicates whether or not the contributor described in the element was deceased when the document or document component was published.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	The contributor was living when the document was published.
yes	The contributor had died by the time the document was published.

8.5.41 @degree-contribution Degree of Contribution

Indicates the level of contribution for this contributor, such as "Lead" or "Supporting".

In element <role>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The degree of contribution, for example, "Lead" or "Equal".

8.5.42 @description Description of a Private Character

Human-readable description of a defined private character (for example, "Arrow, normal weight, single line, two-headed, Northwest to Southeast").

In element <private-char>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A rough visual description of the appearance of the <private-char> character, for example, "Greek capital letter omega with tonos".

8.5.43 `@designator` Designator

Used on such elements as edition number (<edition>) and version (<version>) to hold an unadorned numeric or alphabetic value of the edition or version number for machine search, when the number is a phrase or textual value.

In elements <article-version>, <edition>, <extended-by>, <restricted-by>, and <version>, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character(s) that indicates the version number, edition number, etc.	The unadorned number that indicates the simple, machine-processable value of the element's content. Typically this is a number such as "4" or an alphabetic character such as "A", while the element content may contain ordinals or other text.

8.5.44 `@disp-level` Display Level of a Heading

Indicates the level at which to display a section when the display level and hierarchical level are different.

In element <sec>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name or number of the level of heading to be used to display this heading instead of its regular hierarchical level. This attribute was added to preserve material that may already exist in tagged documents, so the values are likely to be specific to an individual publisher or tag set. Examples might include "2", "head-2", "level2", etc.

8.5.45 `@document-id` Document Component Identifier

Identifier of a major document component within a publication that is (or contains) the target of the <related-object> element.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier for the document that contains the related object (<related-object>).

8.5.46 `@document-id-type` Document Identifier Type

Type of document identifier (for example, a DOI or a publisher's identifier) named in the @document-id attribute of the <related-object> element to identify a document, for example, "doi".

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
The type of document identifier of the related object, for example, a DOI (doi).	Names/describes the type of document identifier for the @document-id attribute named in a <related-object> element. This attribute qualifies the @document-id attribute.

8.5.47 `@document-type` Document Type

The "document" is the part of the source that is typically delivered when a user follows the link to a <related-object>. This attribute names/describes what that document is.

In element <related-object>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	Names the type of document being returned by the **Related Object Information** element, for example, a chapter, appendix, or reference list.

8.5.48 `@dtd-version` Version of the Tag Set (DTD)

Version of the Tag Set to which this document claims to be valid.

In element `<article>`, this attribute *may* be used if the element is used.

Value	Meaning
1.3	Version 1.3 of JATS, an ANSI/NISO standard
1.3d2	Version 1.3d2 (Version 1.2 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.3d1	Version 1.3d1 (Version 1.2 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.2	Version 1.2 of JATS, an ANSI/NISO standard
1.2d2	Version 1.2d2 (Version 1.1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.2d1	Version 1.2d1 (Version 1.1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.1	Version 1.1 of JATS, an ANSI/NISO standard
1.1d3	Version 1.1d3 (Version 1 Committee Draft 3 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d2	Version 1.1d2 (Version 1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d1	Version 1.1d1 (Version 1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.0	Version 1.0 of JATS, the first ANSI/NISO standard
0.4	Version 0.4 of JATS, the first version made publicly available. JATS was not yet an ANSI/NISO standard
3.0	NLM DTD 3.0 (last NLM DTD version before JATS)

8.5.49 `@elocation-id` Elocation Identifier

Bibliographic identifier for a related article that does not have traditional printed page numbers.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The value of the elocation identifier.

8.5.50 `@end_date` End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In element `<ali:free_to_read>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.

8.5.51 `@equal-contrib` Equal Contribution

Indicates whether or not all contributors contributed equally.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	This contributor did not participate equally with all other contributors.
yes	This contributor participated equally with all other contributors.

8.5.52 `@event-type` Type of Event

Type or kind of event in the publication history of a document, for example, a reprint of a book or the publication of a revised online edition.

In element <event>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of event, for example, "reprint", "revision", "edition3".

8.5.53 `@executable` Executable

Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
no	The code cannot or should not be executed.
yes	The code is intended to be run.

8.5.54 `@ext-link-type` Type of External Link

Type of external link; may include a specific source (for example, "pdb", "pir"), identifier type (for example, "doi", "aoi"), or access method (for example, "ftp", "uri").

In elements <ext-link>, <related-article>, and <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of link, for example, "doi", "aoi" or "ftp".

8.5.55 `@fig-type` Type of Figure

Type or format of the figure (for example, "cartoon", "chart", "diagram", "map", "plate", "workflow").

In element <fig>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of object shown in the figure, for example, "diagram", "chart", or "map".

8.5.56 `@fn-type` Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

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In element <fn>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of footnote, where the publisher or archive has given the footnote a named type such as "corresp" to indicate a corresponding author footnote.

8.5.57 @fontchar Font Character Table Offset

Offset of the character into a glyph table, such as a Unicode character.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The offset of the character into a glyph table.

8.5.58 @fontname Font Name

Name of the font.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A name for the font.

8.5.59 @format Format

Name of the image format for the bitmap that is provided with a <glyph-data> element. (The <glyph-data> element is used to define a private use character when the <private-char> contains a bitmap.)

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A word	A word naming the format of the bitmap. The word may not contain any spaces, and the characters of the word are limited to letters, numbers, and these special characters: period, hyphen, underscore, and colon.

8.5.60 @frame Frame (NISO JATS table model)

Specifies which sides of the table should be given rules, making a box or frame of lines around the table. (This attribute is based on and intended to be converted easily to the XHTML frame attribute.)

In element <table>, this attribute *may* be used if the element is used.

Value	Meaning
above	Rule above only (top).
below	Rule below only (bottom).
border	Rules on all table rows and columns.
box	Rules on all 4 sides.
hsides	Rules on horizontal sides only (topbot).
lhs	Left side rule only.
rhs	Right side rule only.
void	No border (none).

Value	Meaning
vsides	Rules on vertical sides only (sides).

8.5.61 `@glyph-data` Glyph Data Character Being Referenced

An `IDREF`-type attribute that points to the `@id` attribute of the `<glyph-data>` character inside a `<private-char>` element. The idea is to use the full `<glyph-data>` with its name and bitmap once, then point to an existing character instead of defining the entire `<glyph-data>` element repeatedly.

In element `<glyph-ref>`, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	The pointing uses the `ID/IDREF` mechanism, using the `@glyph-data` attribute of the `<glyph-ref>` element to point to the `@id` attribute of an existing `<glyph-data>` element.

8.5.62 `@headers` Headers (NISO JATS table model)

List of `@id`s of the table header (`<th>`) or the table data (`<td>`) cells that provide header information for this cell. (This attribute is based on and intended to be converted easily to the XHTML `headers` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Contains a list of one or more `ID`s of the table header (`<th>`) or table data (`<td>`) cells that are acting as the header for the current cell.

8.5.63 `@hreflang` Language of the Link Target

Language of the target to which a link is pointing. A processor following the link would expect to find a document in the language named.

In elements `<abbrev>`, `<article-version>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<extended-by>`, `<funding-source>`, `<funding-statement>`, `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<resource-name>`, `<restricted-by>`, `<self-uri>`, `<supplementary-material>`, `<support-source>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "`en`" for English or "`de`" for German) or for a language and a script ("`ja-Kana`").

8.5.64 `@id` Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In elements `<overline-start>`, `<target>`, and `<underline-start>`, this attribute *must* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. An XML parser can verify that an `IDREF`-style attribute pointing to one of these is pointing to a valid `ID`.

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In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <alternatives>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-categories>, <article-id>, <article-meta>, <article-title>, <article-version>, <article-version-alternatives>, <attrib>, <author-comment>, <author-notes>, <award-desc>, <award-group>, <award-id>, <award-name>, <back>, <bio>, <block-alternatives>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <count>, <country>, <counts>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <equation-count>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <extended-by>, <fax>, <fig>, <fig-count>, <fig-group>, <fixed-case>, <floats-group>, <fn>, <fn-group>, <fpage>, <front>, <front-stub>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <history>, <hr>, <index-term>, <index-term-range-end>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-meta>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <overline-end>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <processing-meta>, <product>, <pub-date>, <pub-date-not-available>, <pub-history>, <pub-id>, <publisher>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-count>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <resource-wrap>, <response>, <restricted-by>, <role>, <roman>, <rp>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-conf>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <surname>, <table>, <table-count>, <table-wrap>, <table-wrap-foot>, <table-wrap-group>, <tbody>, <td>, <term>, <term-head>, <tex-math>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <underline-end>, <unstructured-

kwd-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <word-count>, <x>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. An XML parser can verify that an IDREF-style attribute pointing to one of these is pointing to a valid ID.

8.5.65 @indent-level Indentation Level

This numeric attribute indicates the level of indentation of a line of verse (<verse-line>), relative to the entire verse or stanza (<verse-group>) in which the line is found.

In element <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a counting number that indicates the relative positioning of this verse line within its verse group, for example, "1" for level 1 indentation, "2" for level 2 indentation, etc. Note that the units in which indents are measured are left to the application.

8.5.66 @index-type Type of Index

Names the specific indexes in which an index term (<index-term>) should be used, for example, "author", "subject", "chemical".

In element <index-term>, this attribute *may* be used if the element is used.

Value	Meaning
One or more words	A word naming the index, or a series of words each representing a specific index.

8.5.67 @initials Initials for Personal Names

Initial(s) for the surname or the given names of a person.

In elements <given-names> and <surname>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The initial letters of a person's names.

8.5.68 @institution-id-type Type of Institution Identifier

Type of or name for an institution identifier, such as an ISNI or a RIN (Ringgold).

In element <institution-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of the institution identifier, such as ISNI, Ringgold, or DOI.

8.5.69 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date value ("YYYY-MM-DDThh:mm:ss") for a JATS date-specific element, whether the content of the date be specified as text, an ISO date, a partial date, or as any other date format. If the date *given in the content of the element* is in a non-Gregorian calendar, this attribute can hold the Gregorian calendar equivalent of that date.

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In elements <access-date>, <article-version>, <conf-date>, <date>, <date-in-citation>, <pub-date>, <string-date>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 standard date format ("YYYY-MM-DDThh:mm:ss") for the date given in the element, for example, "2015-07-15".

8.5.70 @issue Issue Number of a Related Article

Issue number of a journal which contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The number of the journal issue, such as "48".

8.5.71 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A journal abbreviation or other journal identifier.

8.5.72 @journal-id-type Type of Journal Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In elements <journal-id> and <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that names the type of identifier (for example, "doi") or that identifies the type of organization or service which assigned the identifier (for example, "index" to indicate an abstracting or indexing service).

8.5.73 @kwd-group-type Type or Kind of Keywords in the Group

The class or type of keyword, for example, "abbreviations" (for keywords that contain an abbreviation and its expansion) or "author-provided".

In elements <kwd-group> and <unstructured-kwd-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	This attribute is used in two different senses: 1) The primary usage describes the class or type of keyword, for example, "abbreviations" for keywords that contain an abbreviation and its expansion, "hierarchical" for keywords that are grouped into a hierarchy, or "code" for keywords that contain a code and its text. 2) The attribute can also name the source that established a particular group of keywords, when the source is not an institutional assigning authority, for example, "author-provided", "publisher", and "editorial".

8.5.74 `@language` Code Language

Programming or scripting language in which this code is written, e.g. "`javascript`", for code written in "JavaScript 3.0". (The "`3.0`" is recorded in the `@language-version` attribute.)

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The lower case name of the programming or scripting language.

8.5.75 `@language-version` Code Language Version

Version of the language in which this code is written, e.g. "`3.0`", for code written in "JavaScript 3.0". (The language name "`javascript`" is recorded in the `@language` attribute.)

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The version of the language in the code sample, such as "`3.0`", "`8A`", etc.

8.5.76 `@license-type` Type of License

Type of license described by the element.

In element `<license>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of license, for example, "`open-access`" for a license permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited; or "`ccc`" for a Copyright Clearance Center statement.

8.5.77 `@link-type` Type of Link (for a Related Object)

How a `<related-object>` element is related to the current document (for example, to indicate a Table of Contents relationship).

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of relationship between the related object and the current document.

8.5.78 `@list-content` List Content

Type of list, usually with a semantically meaningful name (for example, a "`where-list`" for the list of the variables that follows an equation, a "`notation-list`", or a "`procedure-list`" for a list of procedural steps to follow).

In elements `<def-list>` and `<list>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of list for named list types, for example, a "`where-list`" for a list of the variables that frequently follows an equation, a "`notation`" list, or a "`procedure-list`" or "`step-list`" for a list of procedural steps to follow.

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8.5.79 `@list-type` Type of List

Specifies what prefix character should precede each list item. For example, the style may suggest the character type ("`simple`" or "`ordered`"), or the style may name the character explicitly ("`alpha-lower`" for a list numbered "a.", "b.", "c.").

In elements `<def-list>` and `<list>`, this attribute *may* be used if the element is used.

Value	Meaning
A word	A word that either (1) specifies the character to be used for the list-item prefix (for example, the word "`bullet`" for a list with bulleted items) or (2) describes the appearance or format of the list items (for example, the word "`simple`" for a list that has no prefix character before each list item or the word "`ordered`" for a numbered list whose prefix style is set at display time).

8.5.80 `@math-representation` Math Representation in This Document

A list of the (possibly many) ways that mathematical expressions may be represented in this document, for example, both MathML and TeX ("`mathml tex`") or both MathML, SVG graphics, and narrative text ("`mathml images plain-text`").

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
A space-separated list of words that name math representation types	The math representations that may be used in the document, for example, "`mathml`", "`latex`", "`tex`", "`images`", and "`plain-text`"

8.5.81 `@mathml-version` MathML Version

Which version of MathML is used by the tag set for this document?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
2.0	MathML 2.0 is used
3.0	MathML 3.0 is used

8.5.82 `@mime-subtype` Mime Subtype

Mime subtype for a graphic, multimedia object, or piece of supplementary material.

In elements `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific mime subtype (IANA).

8.5.83 `@mimetype` Mime Type

Mime type for a graphic, multimedia object, or piece of supplementary material.

In elements `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The appropriate mime type for the object.

8.5.84 `@name` Name (Private Character)

This attribute is used with `<private-char>`, to contain the unique name for the private character being defined.

In element `<private-char>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with `<private-char>`, supplies the name of the character being defined. By convention, this character should be named in a fashion similar to names found in the Unicode Standard (for example, in all uppercase ASCII, "`NORTHWEST SOUTHEAST ARROW`").

8.5.85 `@name-style` Name Style

Style of processing requested for a structured personal name.

In elements `<name>` and `<string-name>`, this attribute will be assigned the value `western` by default.

Value	Meaning
eastern	The name will **both** be displayed and sorted/inverted with the family name preceding the given name.
given-only	The single name provided is a given name, not a family name/surname. The single name will be both the sort and the display name.
islensk	The name will **both** be displayed and sorted/inverted with the given name preceding the family name.
western	The name will be displayed with the given name preceding the family name, **but** will be sorted/inverted with the family name preceding the given name.

8.5.86 `@notation` Notation

Indicates that the content of the associated element will be coded in one of the named notations.

In element `<tex-math>`, this attribute *may* be used if the element is used.

Value	Meaning
LaTeX	The content of the associated element will be in LaTeX.
TEX	The content of the associated element will be in TeX.
TeX	The content of the associated element will be in TeX.
tex	The content of the associated element will be in TeX.

8.5.87 `@notes-type` Type of Notes

Type of note contained in the element (for example, "`note-in-proof`").

In element `<notes>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The note type, if known, for example, "`note-in-proof`".

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8.5.88 `@object-id` Object Identifier

Identifier of an object (for example, a table, figure, or sidebar) within a separate document that is the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the text or graphic object for a `<related-object>` element.

8.5.89 `@object-id-type` Object Identifier Type

Type of object identifier (for example, an XML `ID`, a string, the label of the object, a DOI) for a `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of the identifier, for example, "`ID`" for an XML attribute of type `ID`.

8.5.90 `@object-type` Object Type

Type of object (for example, "`table`", "`figure`", "`sidebar`") that is the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of related object, such as "`table`".

8.5.91 `@orientation` Orientation

Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical ("`portrait`") or in a wide manner with the long edge horizontal ("`landscape`").

In elements `<array>`, `<boxed-text>`, `<chem-struct-wrap>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `portrait` by default.

Value	Meaning
landscape	The object should be rotated by 90 degrees, so that the display is wide rather than tall.
portrait	The object should not be rotated by 90 degrees; the display will be taller than it is wide.

8.5.92 `@page` Page of Related Article

Page number of a related journal article, which may be either the number of the journal page on which the article starts or a page range.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The page number on which a related article starts or the range of pages for a related article. For example, the value may be a page number such as "`1145`", a page range such as "`35-58`", or a letter/number combination, such as "`46a`" or "`iii`".

8.5.93 `@person-group-type` Type of People in the Person Group

Role of the person(s) being named in the `<person-group>` element (for example, author, editor, curator).

In element `<person-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The role played by the person group in the creation/production of the article, for example, "`editor`" or "`research-assistant`".

8.5.94 `@platforms` Platforms

Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word "name", and multiple platform names will be separated by spaces.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Platform on which the `<code>` is intended to run, for example, "`Mac-OSX`".

8.5.95 `@pointer-to-explained` Pointer to Object Described in Explanation

Used in an `<explanation>` to point to the `<question>`, `<answer>`, or `<option>` that is being explained.

In element `<explanation>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of the object or objects being explained.

8.5.96 `@pointer-to-question` Pointer to Question

Used in an `<answer>` to point to the `<question>`(s) for which it supplies correct answer(s).

In element `<answer>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of one or more `<question>` elements. Typically an answer points to a single question.

8.5.97 `@position` Position

Typically indicates whether a display object (for example, figure, table, boxed text) must be anchored in its exact location within the text or may float to a different location in the document (for example, to the top of the next page, into the next column, within a separate window). Also used to indicate that the display object should be placed in the margin or used as a background image behind the text.

In elements `<boxed-text>`, `<chem-struct-wrap>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `float` by default.

Value	Meaning
anchor	The object must remain in its exact location in the text flow.
background	The object (typically an image) is used as background displayed visually "behind" the narrative text.
float	The object is not anchored and may be moved to a new column, a new window, a new page, the end of the document, etc.

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Value	Meaning
margin	In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.

8.5.98 `@prefix-word` Prefix Word (For a List Item)

Word or phrase to be added to the beginning of each item in a list (for example, "`Step`", "`Procedure`").

In elements `<def-list>` and `<list>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The prefix word to be used for the list; for example, the word "`Step`" might be used to display a list numbered "`Step1.`", "`Step2.`", "`Step3.`", etc.

8.5.99 `@preformat-type` Type of Preformatted Text

Type of content contained in the `<preformat>` element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

In element `<preformat>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase that describes the content or names the type of content for the `<preformat>` element, for example, "`poetry`" for a formatted poem laid out as a tree or "`man-machine`" for a man-machine dialog.

8.5.100 `@product-type` Type of Product

Category of product described in the element (for example, "`book`", "`software`", "`article`", "`issue`", "`website`", "`film`", "`hardware`").

In element `<product>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of product being reviewed, for example, "`website`" or "`videogame`".

8.5.101 `@pub-id-type` Type of Publication Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In elements `<article-id>`, `<issue-id>`, `<object-id>`, `<pub-id>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of identifier, either as a specific type (such as "`doi`" or "`std-designation`") or a generic identifier type (such as "`publisher-id`" or "`archive`").

8.5.102 `@publication-format` Format of Publication

Format or medium of the document (for example, "`print`"). This element is used in several senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date,
- to describe the format/medium for an ISSN or ISBN, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

In elements <date>, <element-citation>, <isbn>, <issn>, <mixed-citation>, <nlm-citation>, and <pub-date>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The cited format, for example, "print".

8.5.103 @publication-type Type of Referenced Publication

Category of publication being cited (for example, "journal" (journal article), "preprint", "book", "letter", "review", "patent", "report", "standard", "data", "working-paper").

In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publication, for example, "book", "journal" (for a journal article), "patent", "preprint", or "data" (for a dataset, database, spreadsheet, etc.).

8.5.104 @publisher-type Type of Publisher

Type of publisher or publishing organization of a work being cited (for example, "government", "standards-body", "university", "commercial", "foundation", "private", "corporate").

In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publisher, for example, "government".

8.5.105 @pub-type Type of Publication

Deprecated: On the element <pub-date>, in the Archiving and Publishing Tag Sets, this @pub-type attribute is deprecated in favor of the @publication-format and @date-type attributes. In all Tag Sets, on the element <issn>, this @pub-type attribute is deprecated in favor of the @publication-format attribute (possibly with the @content-type attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

Definition: Deprecated precombination of the format/medium of a document with one or more events from its lifecycle, for example, "epub" for publication in an electronic format or "ppub" for publication in print.

In elements <issn> and <pub-date>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of print or electronic publication, for example, "epub" for electronic publication.

8.5.106 @question-response-type Type of Answer(s) to be Given to the Question

Used to mark a question as taking a particular type of answer or set of answers, for example, "multiple-choice" or "essay".

In element <question>, this attribute *may* be used if the element is used.

Value	Meaning
essay	The answer to this question requires a longer written answer from the student.

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Value	Meaning
fill-in-the-blank	The answer to this question is a medium-length written answer, typically a phrase or sentence.
multi-select	There are several option choices presented as responses to this question, and the student must select one or more.
multiple-choice	There are several option choices presented as responses to this question, and the student must select one.
short-answer	The answer to this question is a short-length written answer, typically a word or very short phrase or sentence.
true-false	For the answer to this question, the student must choose between "true" and "false".

8.5.107 `@rationale` Rationale

Identifies why this milestone exists, what problem it is solving, and/or what object cannot be modeled using the regular hierarchy.

In elements `<milestone-end>` and `<milestone-start>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The reason for a milestone, or information about an object that cannot be modeled using the regular hierarchy.

8.5.108 `@ref-type` Type of Cross-Reference

Type of element that is the target of the cross-reference (for example: a Figure ("`fig`"), an Author Note ("`author-notes`"), or a Bibliographic Reference ("`bibr`")). The values may be used, for example, for type-specific processing or validation.

In element `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of element to which the reference points, for example, "`fig`" to indicate that the reference points to a figure (`<fig>`).

8.5.109 `@related-article-type` Type of Related Article

Type of article being described by the `<related-article>` element or type of relationship the article being described by the `<related-article>` has to the current article (for example, "`companion-article`" means the related article is a companion to the current article, "`corrected-article` means the related article corrects the current article", or "`preprint`" could be used to point from the version of record to an earlier related preprint).

In element `<related-article>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The article type for the related article, for example, "`addendum`".

8.5.110 `@resolution` Resolution of the Glyph Bitmap

Resolution of a bitmap in dots per inch, expressed as a decimal integer (for example, "`72`", "`300`").

In element `<glyph-data>`, this attribute *may* be used if the element is used.

Value	Meaning
Decimal integer	The number of dots per inch of the bitmap.

8.5.111 `@resource-id-type` Resource Identifier Type

Names the type or kind of identifier of a resource, where a resource is defined as some specific support for the work described in this article (for example, "`rrid`" for a Research Resource Identifier).

In element `<resource-id>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of identifier of a resource, for example, "`rrid`" for a Research Resource Identifier.

8.5.112 `@resource-type` Resource Type

Names the type or kind of resource, where a resource is defined as some specific support for the work described in this article, for example, "`research-materials`".

In element `<contributed-resource-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of resource (specific support for the work described), for example, "research-materials".

8.5.113 `@response-type` Type of Response

Type of response (`<response>`); parallels `@article-type`.

In element `<response>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of response as described by the publisher, for example, "`discussion`".

8.5.114 `@rid` Reference to an Identifier

Value of the identifier of an associated element; used for linking related elements (for example, `<term>` to a `<def>`, `<bio>` to a `<contrib>`).

In elements `<milestone-end>` and `<milestone-start>`, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

In elements `<index-term-range-end>`, `<overline-end>`, and `<underline-end>`, this attribute *must* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

In elements `<aff>`, `<author-notes>`, `<award-group>`, `<award-id>`, `<bio>`, `<contrib>`, `<def>`, `<funding-source>`, `<funding-statement>`, `<named-content>`, `<see>`, `<see-also>`, `<sig>`, `<sig-block>`, `<support-description>`, `<support-source>`, `<term>`, and `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to one or more existing identifiers.

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8.5.115 `@rowspan` Row Span (NISO JATS table model)

Table attribute used to request vertical spanning by naming the number of rows a cell spans in a vertical span. (This attribute is based on and intended to be converted easily to the XHTML `rowspan` attribute.)

In elements `<td>` and `<th>`, this attribute will be assigned the value `1` by default.

Value	Meaning
A counting number	How many rows this cell will span vertically, for example, "`3`".

8.5.116 `@rules` Rules (NISO JATS table model)

Defines which rules to draw between the rows and columns of an XHTML 1.1 table. (This attribute is based on and intended to be converted easily to the XHTML `rules` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
all	Rules on all rows and columns.
cols	Rules between columns.
groups	Rules between groups.
none	No rules in table.
rows	Rules between rows.

8.5.117 `@scope` Scope (NISO JATS table model)

Specifies the cells for which the current `<td>` element or `<th>` element provides header information. Screen readers and other Assistive Technologies use `@scope` to provide information about the table structure that would be obvious to most sighted people. (This attribute is based on the XHTML `scope` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
col	Acts as a header for cells in the same column in following rows.
colgroup	Acts as a header for cells in the current colgroup that are down and to the right of the current cell (i.e., the remaining cells named in the `<colgroup>` element).
row	Acts as a header cell for cells in the same row in following columns.
rowgroup	Acts as a header cell for cells in the current row group (i.e., in the current `<thead>`, `<tfoot>`, or `<body>`) that are down and to the right of the current cell.

8.5.118 `@sec-type` Type of Section

Type of semantic content included in the section (for example, "`materials`", "`conclusions`").

In element `<sec>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the main semantic type of section content, such as "`conclusions`". This attribute is most useful when a list of values is maintained, and articles are tagged accordingly.

8.5.119 `@seq` Sequence

Sequence number of a document within the type of sequence named by the element to which this attribute is attached: on a <volume> element, the sequence within the volume; on an <issue> element, the sequence within the issue; on an <fpage> element, the sequence within a single page; and on an <elocation-id> element, the electronic sequence.

In elements <elocation-id>, <fpage>, <issue>, and <volume>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The number of the document in a sequence of documents within a volume, issue, electronic compilation, or even on the same page. For example, for continuous-makeup journals that start more than one article on the same page, this attribute indicates a sequence number or letter for one of the articles, such as "a", "b", "c"; or "1", "2", "3". For example, a value of "2" could mean "554-2", page 554, second article.

8.5.120 `@source-id` Source Identifier

Identifier of a journal, book, conference proceedings, or other publication that is (or contains) the target of the <related-object>.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the source for the largest publishable unit (such as an entire book or conference proceedings) pointed to by the <related-object> element.

8.5.121 `@source-id-type` Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher's identifier) for a <related-object>.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the type of document identifier named in the @source-id attribute for a <related-object> element. This attribute qualifies the @source-id attribute.

8.5.122 `@source-type` Source Type

This attribute can be used with two elements:

- to identify the kind of source providing an award that sponsored a work or the research on which a work was based (with the element <funding-source>), or
- to identify the type of publication, for example, a "book", "journal", or "database" that is (or contains) the target of the <related-object>.

In element <funding-source>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of entity (such as an organization or an individual) that is the source of an award which sponsors a work or the research underlying the work.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of object that is the source of the related object (<related-object>), for example, "book".

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8.5.123 `@span` Span (NISO JATS table model)

The number of columns that will share the <col> or <colgroup> element's attributes. (This attribute is based on and intended to be converted easily to the XHTML span attribute.)

In elements <col> and <colgroup>, this attribute will be assigned the value 1 by default.

Value	Meaning
A counting number	How many columns will have the same attributes, for example, "3".

8.5.124 `@specific-use` Specific Use

Specifies distinctions in the applicability of a particular element.

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-id>, <article-version>, <attrib>, <author-comment>, <author-notes>, <award-group>, <award-id>, <bio>, <body>, <bold>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <fax>, <fig>, <fig-group>, <fixed-case>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-subtitle>, <journal-title>, <kwd-group>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <named-content>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <overline-end>, <overline-start>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-date-not-available>, <pub-id>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <response>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-conf>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <table>, <table-wrap>, <table-wrap-group>, <target>, <term>, <tex-math>, <textual-form>, <time-stamp>, <title>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <underline-end>, <underline-start>, <unstructured-kwd-

group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <x>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific distinction in the applicability of a particular element, for example, "print-only".

8.5.125 @start_date Start Date

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In elements <ali:free_to_read> and <ali:license_ref>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document starts being free-to-read or begins the given license.

8.5.126 @style Style (NISO JATS table model; MathML Tag Set)

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), to record XHTML classes CSS style names/classes or similar styling information;
- with many of the elements within a NISO JATS table (<table>), to record the name of the XHTML 1.1 table styling to be applied to the element;
- To format verse, used with <verse-line> and <verse-group>.

In elements <caption>, <col>, <colgroup>, <table>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the markup style for one of the elements within a table or for the entire table.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the inline markup style for the element.

8.5.127 @style-detail Styling Detail

Provides additional information about a style (typically named by the @style attribute), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A value which indicates additional information about a style (@style), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.

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8.5.128 `@style-type` Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In elements `<styled-content>`, `<verse-group>`, and `<verse-line>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name or description for the stylistic type, for example, "`green background`".

8.5.129 `@subj-group-type` Type of Subject Group

Subject, information class, or type of a particular `<subj-group>` element.

In element `<subj-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of subject.

8.5.130 `@summary` Summary (NISO JATS table model)

A summary of the contents or the semantics of the table, provided for speech-synthesis and non-visual browsers. (This attribute is based on and intended to be converted easily to the XHTML `summary` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Textual description of the contents of a table, intended to be read to the audience for the table.

8.5.131 `@supplement-type` Type of Supplement

Type of supplement or the reason for the supplement (for example, "`conference`" for a supplement containing information from a conference symposium).

In element `<supplement>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of or reason for the supplement, for example, "`conference`" or "`issue`".

8.5.132 `@support-type` Type of Support Provided

Names a type or kind of support for the research described in this article, for example, provision of facilities or materials.

In element `<support-source>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of support for the research described in this article, for example, provision of facilities or materials.

8.5.133 `@symbol` Symbol

Stores the symbol (for example, an asterisk, numeral, section mark) that was displayed in the original document to identify a specific footnote, if this symbol is to be preserved.

In elements <collab> and <fn>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The symbol used to mark a footnote, such as a dagger "†".

8.5.134 @table-model Table Model Used

Which table model is used by the tag set for this document?

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
both	Both XHTML-inspired and OASIS CALS models are used
none	No table models are used
oasis	The OASIS XML Exchange (CALS) table model
xhtml	The XHTML-inspired table model

8.5.135 @tagset-family JATS Tag Set Family

Which of the JATS tag set families is the basis for this document's tag set?

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
bits	BITS (Book Interchange Tag Suite)
jats	JATS (Journal Article Tag Suite)
sts	STS (Standards Tag Suite)

8.5.136 @target-type Type of Target

Kind of <target> that has been created (for example, describes the reason why some portion of text has been designated for cross-reference purposes).

In element <target>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the rationale for designating a portion of text for cross-reference.

8.5.137 @term-status Term Status

The current status of a term (<term>) in the vocabulary from which it is taken, for example, "preferred".

In element <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The status word that describes the state of the term, for example, "non-preferred" (deprecated).

8.5.138 @term-type Type of Term

The type or kind of a term (<term>), for example, "acronym".

In element <term>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	Type of term being used; for example, the term is an abbreviation or an equation.

8.5.139 `@toggle` Toggle Switch

Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element `<italic>`, this attribute will be assigned the value `yes` by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In element `<roman>`, this attribute will be assigned the value `no` by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In elements `<bold>`, `<monospace>`, `<overline>`, `<sans-serif>`, `<sc>`, `<strike>`, `<styled-content>`, and `<underline>`, this attribute *may* be used if the element is used.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

8.5.140 `@underline-style` Appearance of the Underline

Style of underline to be used (for example, "`single`", "`double`", "`dashed`").

In element `<underline>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The style of underlining requested; for example, "`double`" would mean underlined by two rules, very close together.

8.5.141 `@units` Units

The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value may record "`pages`", "`minutes`", "`seconds`", or "`linear-feet`").

In element `<size>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the units of measure in which the size is expressed, for example, "MB".

8.5.142 @use-type Type of Use

If there is a specific use-case for this citation, this attribute describes it, for example, if this is a data citation, it may state that the data was "analyzed-data" for this article, rather than generated.

In elements <element-citation> and <mixed-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	There are no set value list for this attribute, but the current use-case is for data citations, to express the difference between generated, analyzed, or referenced data.

8.5.143 @valign Vertical Alignment (NISO JATS table model)

Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML valign attribute.)

In elements <col>, <colgroup>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute *may* be used if the element is used.

Value	Meaning
baseline	All cells in the same row as a cell whose @valign attribute has this value should have their textual data positioned so that the first text line occurs on a baseline common to all cells in the row. This constraint does not apply to subsequent text lines in these cells.
bottom	Cell data is flush with the bottom of the cell.
middle	Cell data is centered vertically within the cell.
top	Cell data is flush with the top of the cell.

8.5.144 @version Version of TeX or LaTeX

Version of TeX or LaTeX used to produce the mathematics.

In element <tex-math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Version of TeX or LaTeX used in the equation.

8.5.145 @vocab Vocabulary/Taxonomy Name

The name of a taxonomy, ontology, database, term list, thesaurus, index, controlled vocabulary (defined formally), generic vocabulary (subject area that is defined informally), etc. that is the source of terms such as keywords and subjects.

In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <institution-id>, <kwd>, <kwd-group>, <named-content>, <nested-kwd>, <resource-id>, <restricted-by>, <role>, <see-also>, <subj-group>, <subject>, <term>, and <unstructured-kwd-group>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The name of the vocabulary, taxonomy, ontology, database, term list, index, etc. that is the source of the term named in the element's content.

8.5.146 `@vocab-identifier` Vocabulary/Taxonomy Identifier

Unique identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, for example, the controlled vocabulary for a group of terms such as a keywords or subjects. The content is typically (but is not limited to) a URI or DOI.

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<institution-id>`, `<kwd>`, `<kwd-group>`, `<named-content>`, `<nested-kwd>`, `<resource-id>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subj-group>`, `<subject>`, `<term>`, and `<unstructured-kwd-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, typically (but not limited to) a URI or DOI.

8.5.147 `@vocab-term` Vocabulary/Taxonomy Term

The named vocabulary's canonical form of the term. (Note: The content of the element to which this attribute is attached is the display version of the term.)

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<kwd>`, `<named-content>`, `<nested-kwd>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subject>`, and `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The canonical form of the term in the named vocabulary. This may or may not duplicate the content of the element.

8.5.148 `@vocab-term-identifier` Vocabulary/Taxonomy Term Identifier

A unique identifier within a specific vocabulary for the term to which this attribute is attached, such as (but not limited to) an item number, a URI, a DOI, etc.

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<kwd>`, `<named-content>`, `<nested-kwd>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subject>`, and `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier of the term within a specific vocabulary, such as (but not limited to) an item number, a URI, DOI, etc.

8.5.149 `@vol` Volume of Related Article

Volume of the journal in which a related journal article exists.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The journal volume number for a related journal article, for example, "3" for the third volume, "125" for the one hundred and twenty-fifth, or "XV" for the fifteenth.

8.5.150 `@width` Width (NISO JATS table model)

This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements <col>, <colgroup>, and <table>, this attribute *may* be used if the element is used.

Value	Meaning
Number	Within the NISO JATS Table model (<table>), the width of the table. By default, the NISO JATS table model (based on and designed to be converted easily to the XHTML 1.1 table model) should be used as defined in the XHTML 1.1 table model, to take advantage of existing software for table handling.

8.5.151 `@xlink:actuate` Actuating the Link

The intended behavior for a link when activated by an application, specifically, the timing for obtaining or retrieving the content of a link (for example, by a user clicking on the link to request the material, or by the material being automatically loaded with a document when the document or document component is loaded).

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
none	The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
onLoad	An application should retrieve the link at the same time a user obtains the initial document load.
onRequest	An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.
other	The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.

8.5.152 `@xlink:href` Href (Linking Mechanism)

An address or identifier that permits an XLink application to find a remote resource, for example, a URI (such as a URL or filename) that links to an online site associated with the author or the online definition of a term.

In elements <graphic>, <inline-graphic>, <inline-media>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (a URL) to a resource.

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In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (which may be a URL) to a resource.

8.5.153 `@xlink:role` Role of the Link

A URI reference pointing to some resource that describes the role or function of a link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The URI of a resource that describes the role, reason, or rationale for the link.

8.5.154 `@xlink:show` Showing the Link

The intended presentation behavior for a link, specifically the manner in which the content of a link will be displayed, for example, as embedded material or in a separate window.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
embed	The link should be displayed as part of the initial document being viewed, i.e., the material will be “embedded” directly into the initial document.
new	The link should be displayed as a new, separate window, frame, pane, or other presentation context.
none	The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the display mechanism.

Value	Meaning
other	The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the display mechanism.
replace	The link should be displayed in the same window, frame, pane, or other presentation context as the initial document, thereby "replacing" the document or other object being linked.

8.5.155 `@xlink:title` Title of the Link

Describes the function of a link's remote resource in human-readable fashion.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive, human-readable title that acts as a brief description of the link.

8.5.156 `@xlink:type` Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word "`simple`", which means that the link is a simple, one-ended link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

8.5.157 `@xml:base` Base

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an `@xml:base` of "`https://jats.nlm.nih.gov/`", a URI inside the document of "`publishing/rationale.html`" would be processed as if it were "`https://jats.nlm.nih.gov/publishing/rationale.html`". Values of `@xml:base` are inherited, meaning that if there is an `@xml:base` on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.

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In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <alternatives>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-categories>, <article-id>, <article-meta>, <article-title>, <article-version>, <article-version-alternatives>, <attrib>, <author-comment>, <author-notes>, <award-desc>, <award-group>, <award-id>, <award-name>, <back>, <bio>, <block-alternatives>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <count>, <country>, <counts>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <equation-count>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <extended-by>, <fax>, <fig>, <fig-count>, <fig-group>, <fixed-case>, <floats-group>, <fn>, <fn-group>, <fpage>, <front>, <front-stub>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <history>, <hr>, <index-term>, <index-term-range-end>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-meta>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <overline-end>, <overline-start>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <processing-meta>, <product>, <pub-date>, <pub-date-not-available>, <pub-history>, <pub-id>, <publisher>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-count>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <resource-wrap>, <response>, <restricted-by>, <role>, <roman>, <rp>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-conf>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <surname>, <table>, <table-count>, <table-wrap>, <table-wrap-foot>, <table-wrap-group>, <target>, <tbody>, <td>, <term>, <term-head>, <tex-math>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <underline-

end>, <underline-start>, <unstructured-kwd-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <word-count>, <x>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The base URI.

8.5.158 @xml:lang Language

The language of the intellectual content of the element for which this is an attribute.

The value of this attribute must conform to IETF RFC 5646 (https://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "fr" (French), "en" (English), "de" (German), or "zh" (Chinese) is sufficient. These values are **NOT** case sensitive, but current best practice uses all lower case. In addition to the primary-language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: https://www.iana.org/assignments/language-subtag-registry

In element <article>, this attribute will be assigned the value en by default.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "en" for English or "de" for German) or for a language and a script ("ja-Kana").

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <ack>, <addr-line>, <address>, <aff>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <corresp>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <fig>, <fig-group>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <journal-id>, <journal-subtitle>, <journal-title>, <kwd-group>, <label>, <license>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <milestone-end>, <milestone-start>, <mixed-citation>, <month>, <name>, <named-content>, <nlm-citation>, <note>, <notes>, <on-behalf-of>, <open-access>, <option>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <pub-date>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <response>, <role>, <rt>, <season>, <sec>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-conf>, <string-date>, <string-name>, <styled-content>, <sub-article>, <subj-group>, <subtitle>,

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<suffix>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <table-wrap>, <table-wrap-group>, <target>, <term>, <textual-form>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <unstructured-kwd-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <x>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "en" for English or "de" for German) or for a language and a script ("ja-Kana").

8.5.159 @xmlns:ali NISO ALI Namespace (NISO Access and License Indicators)

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO *Access and License Indicators*) elements. All namespace prefixes must be associated with a URL, and the prefix "ali" has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices recommendation.

In elements <ali:free_to_read>, <ali:license_ref>, and <article>, this attribute *must* have the value http://www.niso.org/schemas/ali/1.0/ (as given below).

Value	Meaning
http://www.niso.org/schemas/ali/1.0/	The URI named in the NISO *Access License and Indicator*s for the ALI elements.

8.5.160 @xmlns:mml MathML Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix "mml" has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same namespace is used for both MathML 2.0 and MathML 3.0.

In elements <article> and <mml:math>, this attribute *must* have the value http://www.w3.org/1998/Math/MathML (as given below).

Value	Meaning
http://www.w3.org/1998/Math/MathML	The prefix "mml" has been set to the URL for the W3C MathML Tag Set.

8.5.161 @xmlns:xlink XLink Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the XLink linking attributes. All namespace prefixes must be associated with a URL, and the prefix "xlink" has been set to the URL for the World Wide Web Consortium (W3C) XLink Recommendation.

In element <article>, this attribute *must* have the value http://www.w3.org/1999/xlink (as given below).

Value	Meaning
http://www.w3.org/1999/xlink	The prefix "xlink" has been set to the URL for the W3C XLink Recommendation.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>,

<media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
http://www.w3.org/1999/xlink	When this attribute is used, the prefix "xlink" should be set to the URL for the W3C XLink Recommendation.

8.5.162 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use in namespace pseudo-attributes such as @xsi:noNamespaceSchemaLocation. All namespace prefixes must be associated with a URL, and the prefix "xsi" has been set to the URL for the World Wide Web Consortium (W3C) XML Schema.

In element <article>, this attribute *must* have the value http://www.w3.org/2001/XMLSchema-instance (as given below).

Value	Meaning
http://www.w3.org/2001/XMLSchema-instance	The prefix "xsi" has been set to the URL for W3C XML Schema.

8.5.163 @xml:space Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements <code>, <glyph-data>, <preformat>, and <x>, this attribute *must* have the value preserve (as given below).

Value	Meaning
preserve	White space should be preserved. (This value is fixed and cannot be changed in a document.)

8.5.164 @x-size X Size of the Glyph

The pixels per row in the bit-mapped glyph that has been declared with a <glyph-data> element as part of a <private-char> element.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A number	An integer number of pixels, for example, "45", that is the number of pixels in each row of the bitmap of the <glyph-data> element.

8.5.165 @xsi:noNamespaceSchemaLocation No Namespace Schema Location

A pseudo-attribute some processors use to point to the location of the Tag Set's XSD file. Cannot be used with DTDs.

In element <article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	File location of the XSD driver file.

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8.5.166 `@y-size` Y Size of the Glyph

The number of rows in the bit-mapped glyph that has been declared with a `<glyph-data>` element as part of a `<private-char>` element.

In element `<glyph-data>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	The number of rows (for example, "`25`") used to define the glyph in a `<glyph-data>` element.

9 Journal Publishing Tag Set, version 1.3

9.1 Rationale

The Journal Publishing Tag Set defines elements and attributes that describe the content and metadata of a journal article, including research articles; subject-review articles; non-research articles; letters; editorials; book, software, and product reviews; peer reviews, and author responses included with an article. The Tag Set allows for descriptions of the full article content or just the article header metadata.

The intent of the Publishing Tag Set is to provide a standardized format for users to regularize and optimize data for exchange with publishing, hosting, or archiving partners. The model works as a conversion target for article content provided both in XML and non-XML formats.

Because this Tag Set is intended to regularize data, the model includes fewer elements and tagging choices than the NISO JATS Archiving Tag Set. Publishing imposes element sequence more often and is not concerned with accepting sequence and arrangement of data provided by another group or individual.

This Tag Set describes an article model that is a prescriptive conversion target that eases reuse and the creation of output products.

9.2 Scope

By design, this is a model for journal articles, such as the typical research article found in an STM journal, and not a model for complete journals. This Tag Set does not include an overarching model for a collection of articles. In addition, the following journal material is not described by this Tag Set:

- Company, product, or service display advertising
- Job search or classified advertising
- Calendars, meeting schedules, and conference announcements (except as these can be tagged as ordinary articles, sub-articles, or sections within articles)
- Material specific to an individual journal, such as Author Guidelines, Policy and Scope statements, editorial or advisory boards, detailed indicia, etc.

9.3 Article Structural Overview

The Journal Publishing Tag Set defines a document that is a top-level component of a journal such as an article, a book or product review, or a letter to the editor. Each such document is composed of one or more parts; if there is more than one part, they must appear in the following order:

- **Processing Metadata** (optional). The metadata that concerns the XML file rather than the contents of the article.
- **Front matter** (required). The article front matter contains the metadata for the article (also called article header information), for example, the article title, the journal in which it appears, the date and issue of publication for that issue of that journal, a copyright statement, etc. This is not textual front matter as appears in books, rather this is bibliographic information about the article and the journal in which it was published.

- **Body of the article** (optional). The body of the article is the main textual and graphic content of the article. This usually consists of paragraphs and sections, which may themselves contain figures, tables, sidebars (boxed text), etc. The body of the article is optional to accommodate those repositories that just keep article header information and do not tag the textual content.
- **Back matter for the article** (optional). If present, the article back matter contains information that is ancillary to the main text, such as a glossary, appendix, or list of cited references.
- **Floating Material** (optional). A publisher may choose to place all the floating objects in an article (such as tables, figures, boxed text sidebars, etc.) into a separate container element outside the narrative flow for convenience of processing.
- **Responses and sub-articles** (optional). Following the front, body, back, and floating material, there may be either one or more responses to the article or one or more subordinate articles:
    - **Response**. A response is a commentary on the article itself, for example, an opinion from an editor on the importance of the article or a reply from the original author to a letter concerning his article.
    - **Sub-article**. A sub-article is a small article that is completely contained inside another article.

9.4 Elements

Each element in the Tag Set is listed and identified, and specifics of the model of the element in this Tag Set are provided.

Each element is identified with a <tag>, element name, and definition, as it is listed in Section 7, *Tag Suite Components*. Following that appears the modeling information specific to this Tag Set:

- any attributes the element may have in this Tag Set, including:
    - the attribute name and
    - the attribute's informal expanded name
- the element's content model, described in narrative form, in which:
    - the relationships among elements or groups of elements are specified, for example, "Any combination of" if the structures may occur in any sequence, or "The following, in order" if the structures must appear in the specified sequence
    - the elements are identified by their <tag>s and Element Names
    - notes indicating occurrence:
        - if the relationship indicator is "Any combination of", any of the elements therein may occur zero or more times in any sequence
        - if there is any other relationship indicator, it is assumed that an element must occur, and may occur only once unless there is a statement otherwise. Such statement may be "zero or one", "one or more", or "zero or more".

Note that for the convenience of the user these models are provided as XML DTDs, W3C XML Schemas (XSD), and as RELAX NG Schemas (RNGs), which may be found at: https://jats.nlm.nih.gov

9.4.1 `<abbrev>` Abbreviation or Acronym

Abbreviation, acronym, or emoticon used in the text of a document, possibly including an expansion of the acronym.

Attributes:

`@alt` **Alternative Text**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**

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`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<def>` **Definition List: Definition**

9.4.2 <abbrev-journal-title> Abbreviated Journal Title

Short form of the title of the journal in which an article is published.

Attributes:

`@abbrev-type` **Type of Journal Title Abbreviation**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.3 <abstract> Abstract

Summarized description of the content of a document or document component.

Attributes:

`@abstract-type` **Type of Abstract**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<p>` **Paragraph**, zero or more
- `<sec>` **Section**, zero or more

9.4.4 <access-date> Access Date for Cited Work

This element is deprecated, Avoid using it; use `<date-in-citation>`.

Attributes:

`@calendar` **Calendar**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.5 <ack> Acknowledgments

Textual material that names the parties who the author wishes to thank or recognize for their assistance in/contributions toward the article, for example, producing the work, funding the work, inspiring the work, or assisting in the research on which the work is based.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- <p> **Paragraph**, zero or more
- <sec> **Section**, zero or more
- <ref-list> **Reference List (Bibliographic)**, zero or more

9.4.6 <addr-line> Address Line

One physical or logical line of an address.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**

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    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**

9.4.7 <address> Address/Contact Information

Container element for contact information such as a postal address for a person or organization.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**

9.4.8 <aff> Affiliation

Name of an institution or organization (for example, university, corporation) with which a contributor is affiliated.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**

- ◦ <city> **City**
- ◦ <country> **Country: in an Address**
- ◦ <fax> **Fax Number: in an Address**
- ◦ <institution> **Institution Name: in an Address**
- ◦ <institution-wrap> **Institution Wrapper**
- ◦ <phone> **Phone Number: in an Address**
- ◦ <postal-code> **Postal Code**
- ◦ <state> **State or Province**

- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- <break> **Line Break**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.9 <aff-alternatives> Affiliation Alternatives

Container element to hold two or more representations of a single affiliation (for example, the name of a university in two or more languages such as both German and English).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<aff> **Affiliation**, one or more

9.4.10 <ali:free_to_read> Free to Read (NISO Access and License Indicators)

A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.

Attributes:

@content-type **Type of Content**
@end_date **End Date**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@start_date **Start Date**
@xml:base **Base**

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`@xmlns:ali` **NISO ALI Namespace (NISO Access and License Indicators)**

Content model:

This is an EMPTY element

9.4.11 <ali:license_ref> License Reference (NISO and Access License Indicators)

A reference to a URI that carries the license terms specifying how a work may be used.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@start_date` **Start Date**
`@xml:base` **Base**
`@xmlns:ali` **NISO ALI Namespace (NISO Access and License Indicators)**

Content model:

Text, numbers, or special characters

9.4.12 <alt-text> Alternate Text Name (for a figure, etc.)

Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a figure or a graphic, nearly always used for Accessibility.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.13 <alt-title> Alternate Title

An alternative or different version of the title of a work.

Attributes:

`@alt-title-type` **Type of Alternate Title**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**

    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <break> **Line Break**

9.4.14 <alternatives> Alternatives For Processing

Container element used to hold a group of processing alternatives, for example, a single <graphic> that ships in several formats (tif, gif, and jpeg) or in different resolutions. This element is a physical grouping to contain multiple logically equivalent (substitutable) versions of the same information object. Typically these are processing alternatives, and the reader is expected to see only one version of the object.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- One or more of any of:
    - <array> **Array (Simple Tabulation)**
    - <chem-struct> **Chemical Structure (Display)**
    - <code> **Code**
    - <graphic> **Graphic**
    - Inline Display Elements
        - <inline-graphic> **Graphic, Inline**
        - <inline-media> **Inline Media Object**
        - <private-char> **Private Character (Custom or Unicode)**
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table> **Table (NISO JATS table model)**

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- ◦ <textual-form> **Textual Form**
- ◦ Math Elements
  - ▪ <tex-math> **TeX Math Equation**
  - ▪ <mml:math> **Math (MathML Tag Set)**

9.4.15 <annotation> Annotation in a Citation

Commentary, summary, review, or similar non-bibliographic information concerning the cited work.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

9.4.16 <anonymous> Anonymous

Placeholder for the name of a contributor where the actual name is unknown or not disclosed.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

This is an EMPTY element

9.4.17 <answer> Answer to a Question

The correct answer to a question.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@pointer-to-question **Pointer to Question**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - ◦ <sec> **Section**, one or more
  - ◦ The following, in order:
    - ▪ One or more of any of:
      - <address> **Address/Contact Information**
      - <alternatives> **Alternatives For Processing**
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <array> **Array (Simple Tabulation)**
      - <block-alternatives> **Block-level Alternatives**
      - <boxed-text> **Boxed Text**

- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

▪ <sec> **Section**, zero or more

- Any combination of:
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**
- <explanation> **Explanation**, zero or more

9.4.18 <answer-set> Answer Set

A series of answers, typically grouped for display purposes.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- One or more of any of:
  - <answer> **Answer to a Question**
  - <p> **Paragraph**
  - <explanation> **Explanation**

9.4.19 <app> Appendix

Additional material added to a document that typically follows the body of the document. This is ancillary or supporting material, not a direct continuation of the text of the document.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- The following, in order:
  - `<sec-meta>` **Section Metadata**, zero or one
  - Any one of:
    - The following, in order:
      - `<label>` **Label (of an Equation, Figure, Reference, etc.)**
      - `<title>` **Title**, zero or one
    - `<title>` **Title**
  - Any combination of:
    - Paragraph-level Display Elements
      - `<address>` **Address/Contact Information**
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<array>` **Array (Simple Tabulation)**
      - `<block-alternatives>` **Block-level Alternatives**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<explanation>` **Explanation**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**
      - `<question-wrap-group>` **Question Wrapper Group**
      - `<supplementary-material>` **Supplementary Material Metadata**
      - `<table-wrap>` **Table Wrapper**
      - `<table-wrap-group>` **Table Wrapper Group**
    - `<alternatives>` **Alternatives For Processing**
    - `<disp-formula>` **Formula, Display**
    - `<disp-formula-group>` **Formula, Display Group**
    - Lists
      - `<def-list>` **Definition List**
      - `<list>` **List**
    - Math Elements
      - `<tex-math>` **TeX Math Equation**
      - `<mml:math>` **Math (MathML Tag Set)**
    - `<p>` **Paragraph**
    - `<related-article>` **Related Article Information**
    - `<related-object>` **Related Object Information**
    - `<disp-quote>` **Quote, Displayed**
    - `<speech>` **Speech**
    - `<statement>` **Statement, Formal**
    - `<verse-group>` **Verse Form for Poetry**
  - `<sec>` **Section**, zero or more
  - Any combination of:
    - `<fn-group>` **Footnote Group**
    - `<glossary>` **Glossary Elements List**
    - `<ref-list>` **Reference List (Bibliographic)**
- `<permissions>` **Permissions**, zero or one

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9.4.20 <app-group> Appendix Group

Container element for one or more appendices (<app> elements).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- Any combination of:
  - <app> **Appendix**
  - <ref-list> **Reference List (Bibliographic)**

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9.4.21 <array> Array (Simple Tabulation)

Tabular arrangement of text in the narrative flow of the document. Unlike a <table-wrap>, an array does not contain a label, title, caption, or table headings (column heads).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Any one of:
  - Any combination of:
    - <alternatives> **Alternatives For Processing**
    - <graphic> **Graphic**
    - <media> **Media Object**
  - <tbody> **Table Body (NISO JATS table model)**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.22 <article> Article

A journal article.

Attributes:

@article-type **Type of Article**
@dtd-version **Version of the Tag Set (DTD)**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**
@xmlns:mml **MathML Namespace Declaration**
@xmlns:xlink **XLink Namespace Declaration**
@xmlns:xsi **XML Schema Namespace Declaration**
@xsi:noNamespaceSchemaLocation **No Namespace Schema Location**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- <front> **Front Matter**
- <body> **Body of the Document**, zero or one
- <back> **Back Matter**, zero or one
- <floats-group> **Floating Element Group**, zero or one
- Any one of:
  - <sub-article> **Sub-article**, zero or more
  - <response> **Response**, zero or more

9.4.23 <article-categories> Article Grouping Data

Container element for elements that may be used to group articles into related clusters, for example, by subject matter or by series.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <subj-group> **Subject Group**, zero or more
- <series-title> **Series Title**, zero or more
- <series-text> **Series Text: Header Text to Describe**, zero or more

9.4.24 <article-id> Article Identifier

Unique external identifier assigned to an article.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

9.4.25 <article-meta> Article Metadata

Container element for information concerning the article that identifies or describes the article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <article-id> **Article Identifier**, zero or more
- Optionally any one of:
  - <article-version> **Article Current Version Status or Number**
  - <article-version-alternatives> **Article Current Version Alternatives**
- <article-categories> **Article Grouping Data**, zero or one
- <title-group> **Title Group**
- Any combination of:
  - <contrib-group> **Contributor Group**
  - <aff> **Affiliation**
  - <aff-alternatives> **Affiliation Alternatives**
- <author-notes> **Author Note Group**, zero or one
- Any one of:
  - <pub-date> **Publication Date**, one or more
  - <pub-date-not-available> **Publication Date Not Available Flag**, zero or one
- <volume> **Volume Number**, zero or more
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or more
- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-title-group> **Issue Title Group**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one

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- <volume-issue-group> **Volume Issue Grouping**, zero or more
- <isbn> **ISBN**, zero or more
- <supplement> **Supplement Information**, zero or one
- Optionally any one of:
  - The following, in order:
    - <fpage> **First Page**
    - <lpage> **Last Page**, zero or one
    - <page-range> **Page Ranges**, zero or one
  - <elocation-id> **Electronic Location Identifier**
- Any combination of:
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
  - <product> **Product Information**
  - <supplementary-material> **Supplementary Material Metadata**
- <history> **History: Document History**, zero or one
- <pub-history> **Publication History**, zero or one
- <permissions> **Permissions**, zero or one
- <self-uri> **URI for This Same Article Online**, zero or more
- Any combination of:
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <abstract> **Abstract**, zero or more
- <trans-abstract> **Translated Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <funding-group> **Funding Group**, zero or more
- <support-group> **Support Group**, zero or more
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

9.4.26 <article-title> Article Title

Full title of an article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**

    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <break> **Line Break**

9.4.27 <article-version> Article Current Version Status or Number

Holds version information such as a version type, version status, version statement, or version number for the current article.

Attributes:

@article-version-type **Type of the Article Version Statement**
@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

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9.4.28 <article-version-alternatives> Article Current Version Alternatives

A container element to hold multiple <article-version> elements, when a single article has more than one *simultaneous* version identifier and all should be recorded. For example, an article may be described with both a NISO-RP-8-2008 JAV version phrase and a publisher or aggregator version number.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<article-version> **Article Current Version Status or Number**, one or more

9.4.29 <attrib> Attribution

Container element for information concerning the origin of an extract, figure, display quote, table, verse, or similar element.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**

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- ◦ <milestone-end> **Milestone End**
- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.30 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, one or more

9.4.31 <author-notes> Author Note Group

Container element for notes about the article's contributors.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
  - ◦ <corresp> **Correspondence Information**
  - ◦ <fn> **Footnote**
  - ◦ <p> **Paragraph**

9.4.32 <award-desc> Award Description

Descriptive text associated with an award ID or award name, which may express, for example, the type of award ("Post-doc fellowship", "operating grant"), something about the award ("statutory funds"), or a description of the award ("a research grant for developing innovative cancer treatments").

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**

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`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.33 <award-group> Award Group

Container element for information concerning one award of the possibly multiple sources of support for this work (or the research on which the work was based).

Attributes:

`@award-type` **Type of Award**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- Any one of:
  - <funding-source> **Funding Source**, zero or more
  - <support-source> **Support Source**, zero or more
- <award-id> **Award Identifier**, zero or more
- <award-name> **Award Name**, zero or one
- <award-desc> **Award Description**, zero or one
- <principal-award-recipient> **Principal Award Recipient**, zero or more
- <principal-investigator> **Principal Investigator**, zero or more

9.4.34 <award-id> Award Identifier

Unique identifier assigned to an award, contract, or grant.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@award-id-type` **Type of Identifier for an Award**
`@award-type` **Type of Award**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.35 <award-name> Award Name

Some awards are known by specific names, for historical reasons or to honor a funder, mentor, or researcher. This element holds the text of such a name, such as the "Marie Curie Career Integration Grant", the "Schleswig-Holstein Excellence Chair" or the "Wolfson Merit Award".

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.36 <back> Back Matter

Material published with an article but following the narrative flow.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

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Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or more
- Any combination of:
  - <ack> **Acknowledgments**
  - <app-group> **Appendix Group**
  - <bio> **Biography**
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**
  - <notes> **Notes**
  - <sec> **Section**

9.4.37 <bio> Biography

Biographical data concerning a contributor or the description of a collaboration.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**

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- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

• <sec> **Section**, zero or more
• Any combination of:
- <fn-group> **Footnote Group**
- <glossary> **Glossary Elements List**
- <ref-list> **Reference List (Bibliographic)**

9.4.38 <block-alternatives> Block-level Alternatives

Container element to hold block-level processing alternatives, such as the same table or figure in two languages.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
• <object-id> **Object Identifier**, zero or more
• One or more of any of:
- <boxed-text> **Boxed Text**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

9.4.39 <body> Body of the Document

Main textual portion of the document that conveys the narrative content.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
• Any combination of:
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**

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        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
      - <alternatives> **Alternatives For Processing**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
    - <sec> **Section**, zero or more
    - <sig-block> **Signature Block**, zero or one

9.4.40 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**

- <underline> **Underline**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.41 <boxed-text> Boxed Text

Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**

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        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
      - <alternatives> **Alternatives For Processing**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
  - <sec> **Section**, zero or more
  - Any combination of:
      - <fn-group> **Footnote Group**
      - <glossary> **Glossary Elements List**
      - <ref-list> **Reference List (Bibliographic)**
  - Any combination of:
      - Ownership Elements
        - <attrib> **Attribution**
        - <permissions> **Permissions**

9.4.42 <break> Line Break

An explicit line break in the text.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.43 <caption> Caption of a Figure, Table, etc.

Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

9.4.44 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter. This element is deprecated in JATS. Avoid using it; use <part-title> instead.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.45 <chem-struct> Chemical Structure (Display)

Chemical expression, reaction, equation, etc. that is set apart within the text.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**

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`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<break>` **Line Break**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- Lists
  - `<def-list>` **Definition List**
  - `<list>` **List**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<alternatives>` **Alternatives For Processing**
- `<array>` **Array (Simple Tabulation)**
- `<code>` **Code**
- `<graphic>` **Graphic**
- `<media>` **Media Object**
- `<preformat>` **Preformatted Text**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.46 `<chem-struct-wrap>` Chemical Structure Wrapper

Wrapper element for a chemical expression, reaction, equation, etc. that is set apart from the text; includes any number, label, or caption that accompanies the chemical expression.

Attributes:

`@content-type` **Type of Content**

`@id` **Document Internal Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<caption>` **Caption of a Figure, Table, etc.**, zero or one
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- One or more of any of:
  - `<alternatives>` **Alternatives For Processing**
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<code>` **Code**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<textual-form>` **Textual Form**
- Any combination of:
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

9.4.47 `<citation-alternatives>` Citation Alternatives

Holds alternative versions of a single citation, for example, the same citation in multiple languages or a single citation tagged as both a `<mixed-citation>` complete with punctuation and spacing preserved and as an `<element-citation>` with punctuation and spacing removed.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- One or more of any of:
  - `<element-citation>` **Element Citation**
  - `<mixed-citation>` **Mixed Citation**
  - `<nlm-citation>` **NLM Citation**

9.4.48 `<city>` City

The name of a city.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**

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`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.49 <code> Code

A container element for technical content such as programming language code, pseudo-code, schemas, or a markup fragment.

Attributes:

`@code-type` **Type of Code**
`@code-version` **Code Version**
`@executable` **Executable**
`@id` **Document Internal Identifier**
`@language` **Code Language**
`@language-version` **Code Language Version**
`@orientation` **Orientation**
`@platforms` **Platforms**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xml:space` **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements

- <sub> **Subscript**
- <sup> **Superscript**

9.4.50 <col> Table Column (NISO JATS table model)

The description of one column of a table, used to provide attributes relating to a specific column. If there is no <col> element these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHTML col element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.51 <colgroup> Table Column Group (NISO JATS table model)

A container element to hold column descriptions (element <col>) for a group of columns in a table—or for all of the columns in the table if there is only one <colgroup> in the table. Attributes on the <colgroup> apply to all of the columns in the group unless over-ridden on the <col>. (This element is based on and intended to be converted easily to the XHTML colgroup element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

<col> **Table Column (NISO JATS table model)**, zero or more

9.4.52 <collab> Collaborative (Group) Author

Group of contributors credited under a single name, such as an organization credited as a contributor.

Attributes:

@collab-type **Type of Collaboration**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@symbol **Symbol**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**

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@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- <contrib-group> **Contributor Group**
- <address> **Address/Contact Information**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <author-comment> **Author Comment**
- <bio> **Biography**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <on-behalf-of> **On Behalf of**
- <role> **Role or Function Title of Contributor**
- <xref> **X (cross) Reference**

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- <fn> **Footnote**

9.4.53 <collab-alternatives> Collaboration Alternatives

Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<collab> **Collaborative (Group) Author**, one or more

9.4.54 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**

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- ◦ <index-term> **Index Term**
- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <milestone-end> **Milestone End**
- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.55 <compound-kwd> Compound Keyword

Wrapper element for multi-part keywords (for example, a code and its meaning).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

<compound-kwd-part> **Compound Keyword Part**, one or more

9.4.56 <compound-kwd-part> Compound Keyword Part

Individual component of a multi-part keyword (for example, a code, the code's meaning).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**

    - <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.57 <compound-subject> Compound Subject Name

Wrapper element to hold all the parts of a multi-part subject (for example, a subject term and the code representing that term).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

<compound-subject-part> **Compound Subject Part Name**, one or more

9.4.58 <compound-subject-part> Compound Subject Part Name

Individual component of a multi-part subject (for example, subject term, code for the term).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**

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- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.59 `<conf-acronym>` Conference Acronym

Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.60 `<conf-date>` Conference Date

Date(s) on which a conference was held.

Attributes:

`@calendar` **Calendar**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.61 `<conf-loc>` Conference Location

Physical location(s) of a conference (for example, city, country, campus, organization location).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - `<addr-line>` **Address Line**
  - `<city>` **City**
  - `<country>` **Country: in an Address**
  - `<fax>` **Fax Number: in an Address**
  - `<institution>` **Institution Name: in an Address**
  - `<institution-wrap>` **Institution Wrapper**
  - `<phone>` **Phone Number: in an Address**
  - `<postal-code>` **Postal Code**
  - `<state>` **State or Province**

9.4.62 `<conf-name>` Conference Name

Full name of a conference, including any qualifiers such as “43rd Annual”.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.63 <conf-num> Conference Number

Sequential number of a conference.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.64 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**

9.4.65 <conf-theme> Conference Theme

Theme, slogan, or major subject area of a conference.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**

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    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.66 <conference> Conference Information

Container element to contain information about a single conference and its proceedings.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:
- <conf-date> **Conference Date**
- One or more of any of:
    - <conf-name> **Conference Name**
    - <conf-acronym> **Conference Acronym**
- <conf-num> **Conference Number**, zero or one
- <conf-loc> **Conference Location**, zero or one
- <conf-sponsor> **Conference Sponsor**, zero or more
- <conf-theme> **Conference Theme**, zero or one

9.4.67 <contrib> Contributor

Container element for information about a single author, editor, or other contributor to the article.

Attributes:

@contrib-type **Type of Contribution**
@corresp **Corresponding Author**
@deceased **Deceased**
@equal-contrib **Equal Contribution**

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:
- <contrib-id> **Contributor Identifier**, zero or more
- Any combination of:
  - Contributor Naming Elements
    - <anonymous> **Anonymous**
    - <collab> **Collaborative (Group) Author**
    - <collab-alternatives> **Collaboration Alternatives**
    - <name> **Name of Person**
    - <name-alternatives> **Name Alternatives**
    - <string-name> **Name of Person (Unstructured)**
- <degrees> **Degree(s)**, zero or more
- Any combination of:
  - <address> **Address/Contact Information**
  - <aff> **Affiliation**
  - <aff-alternatives> **Affiliation Alternatives**
  - <author-comment> **Author Comment**
  - <bio> **Biography**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
  - <on-behalf-of> **On Behalf of**
  - <role> **Role or Function Title of Contributor**
  - <xref> **X (cross) Reference**

9.4.68 <contrib-group> Contributor Group

Container element for one or more contributors and information about those contributors.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- <contrib> **Contributor**, one or more
- Any combination of:
  - <address> **Address/Contact Information**
  - <aff> **Affiliation**
  - <aff-alternatives> **Affiliation Alternatives**
  - <author-comment> **Author Comment**
  - <bio> **Biography**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**

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- ◦ <on-behalf-of> **On Behalf of**
- ◦ <role> **Role or Function Title of Contributor**
- ◦ <xref> **X (cross) Reference**

9.4.69 <contrib-id> Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element may hold, for example, an ORCID, a trusted publisher's identifier, a JST identifier (Japan Science and Technology Agency), an arXiv Author ID, or a Scopus Author ID.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@authenticated **Authenticated**
@content-type **Type of Content**
@contrib-id-type **Contributor Identifier Type**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.70 <contributed-resource-group> Contributed Resource Group

Container element for information concerning non-financial support for the research reported in the work (typically an article). Such support may include facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

@id **Document Internal Identifier**
@resource-type **Resource Type**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <award-group> **Award Group**, zero or more
- <support-description> **Support Description**, zero or more
- <resource-group> **Resource Group**, zero or more

9.4.71 <copyright-holder> Copyright Holder

Name of the organizational or personal entity that holds a copyright.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.72 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.73 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

9.4.74 <corresp> Correspondence Information

Information concerning how and with whom to correspond about an article.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements

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- ◦ <addr-line> **Address Line**
- ◦ <city> **City**
- ◦ <country> **Country: in an Address**
- ◦ <fax> **Fax Number: in an Address**
- ◦ <institution> **Institution Name: in an Address**
- ◦ <institution-wrap> **Institution Wrapper**
- ◦ <phone> **Phone Number: in an Address**
- ◦ <postal-code> **Postal Code**
- ◦ <state> **State or Province**
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.75 <count> Count

Generic count element to count anything a NISO JATS user organization may wish to count in a document. The @count-type attribute will name what is being counted (such as footnotes, tables, sections, contributors, images, etc.) The @count attribute will state how many of the objects are in the document.

Attributes:

@count **Count**
@count-type **Count Type**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.76 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.77 <counts> Counts

Container element for counts of a document (for example, the number of tables, number of figures, number of words).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <count> **Count**, zero or more
- <fig-count> **Figure Count**, zero or one
- <table-count> **Table Count**, zero or one
- <equation-count> **Equation Count**, zero or one
- <ref-count> **Reference Count**, zero or one
- <page-count> **Page Count**, zero or one
- <word-count> **Word Count**, zero or one

9.4.78 <custom-meta> Custom Metadata

Wrapper element for a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <meta-name> **Metadata Data Name for Custom Metadata**
- <meta-value> **Metadata Data Value for Custom Metadata**

9.4.79 <custom-meta-group> Custom Metadata Group

Container element for metadata not otherwise defined in the Tag Suite.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

<custom-meta> **Custom Metadata**, one or more

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9.4.80 <data-title> Data Title

The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.81 <date> Date

Container element for the parts of a single calendar date.

Attributes:

@calendar **Calendar**
@date-type **Type of Date**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:

- Optionally any one of:
  - The following, in order:
    - <day> **Day**, zero or one
    - <month> **Month**, zero or one
  - <season> **Season**
- <year> **Year**

- <era> **Era of Time**, zero or one

9.4.82 <date-in-citation> Date within a Citation

Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**

9.4.83 <day> Day

Numeric, two-digit value of the day of the month.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.84 <def> Definition List: Definition

Definition, explanation, or expansion of a word, phrase, or abbreviation.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

9.4.85 <def-head> Definition List: Definition Head

Heading over the second column (the definition column) of a definition list (two-part list).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

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- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.86 <def-item> Definition List: Definition Item

One item in a definition (two-part) list.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <term> **Definition List: Term**
- <def> **Definition List: Definition**, zero or more

9.4.87 <def-list> Definition List

List in which each item consists of two parts: 1) a word, phrase, term, graphic, chemical structure, or equation, that is paired with 2) one or more descriptions, discussions, explanations, or definitions of it.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <term-head> **Definition List: Term Head**, zero or one
- <def-head> **Definition List: Definition Head**, zero or one
- <def-item> **Definition List: Definition Item**, zero or more
- <def-list> **Definition List**, zero or more

9.4.88 <degrees> Degree(s)

Academic titles or professional certifications displayed following a personal name (for example, "MD", "PhD").

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.89 <disp-formula> Formula, Display

Mathematical equation, expression, or formula that is to be displayed as a block (callout) within the narrative flow.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- <abstract> **Abstract**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <break> **Line Break**
- <caption> **Caption of a Figure, Table, etc.**
- Emphasis Elements

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- ◦ <bold> **Bold**
- ◦ <fixed-case> **Fixed Case**
- ◦ <italic> **Italic**
- ◦ <monospace> **Monospace Text (Typewriter Text)**
- ◦ <overline> **Overline**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <object-id> **Object Identifier**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- <kwd-group> **Keyword Group**
- <subj-group> **Subject Group**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- <alternatives> **Alternatives For Processing**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.90 <disp-formula-group> Formula, Display Group

Container element for equations or other mathematical expressions.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - ◦ Accessibility Elements
    - ▪ <alt-text> **Alternate Text Name (for a figure, etc.)**
    - ▪ <long-desc> **Long Description**
  - ◦ Linking Elements

        - <email> **Email Address**
        - <ext-link> **External Link**
        - <uri> **Uniform Resource Identifier (URI)**
    - Any combination of:
        - <disp-formula> **Formula, Display**
        - <disp-formula-group> **Formula, Display Group**

9.4.91 <disp-quote> Quote, Displayed

Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
    - Paragraph-level Display Elements
        - <address> **Address/Contact Information**
        - <answer> **Answer to a Question**
        - <answer-set> **Answer Set**
        - <array> **Array (Simple Tabulation)**
        - <block-alternatives> **Block-level Alternatives**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <code> **Code**
        - <explanation> **Explanation**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
        - <table-wrap-group> **Table Wrapper Group**
    - <alternatives> **Alternatives For Processing**
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**
    - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
    - <p> **Paragraph**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
    - <disp-quote> **Quote, Displayed**
    - <speech> **Speech**
    - <statement> **Statement, Formal**
    - <verse-group> **Verse Form for Poetry**
- Any combination of:

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- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**

9.4.92 <edition> Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

@content-type **Type of Content**
@designator **Designator**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.93 <element-citation> Element Citation

Bibliographic description of a work. Includes bibliographic reference elements only. Does not include untagged text, spacing, or punctuation.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@use-type **Type of Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

One or more of any of:
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements

    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
  - Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - <label> **Label (of an Equation, Figure, Reference, etc.)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <annotation> **Annotation in a Citation**
  - <article-title> **Article Title**
  - <chapter-title> **Chapter Title in a Citation**
  - <collab> **Collaborative (Group) Author**
  - <collab-alternatives> **Collaboration Alternatives**
  - <comment> **Comment in a Citation**
  - <conf-acronym> **Conference Acronym**
  - <conf-date> **Conference Date**
  - <conf-loc> **Conference Location**
  - <conf-name> **Conference Name**
  - <conf-sponsor> **Conference Sponsor**
  - <data-title> **Data Title**
  - <date> **Date**
  - <date-in-citation> **Date within a Citation**
  - <day> **Day**
  - <edition> **Edition Statement, Cited**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
  - <elocation-id> **Electronic Location Identifier**
  - <etal> **Et Al.**
  - <fpage> **First Page**
  - <gov> **Government Report, Cited**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <isbn> **ISBN**
  - <issn> **ISSN International Standard Serial Number**
  - <issn-l> **ISSN-L (Linking ISSN)**
  - <issue> **Issue Number**
  - <issue-id> **Issue Identifier**
  - <issue-part> **Issue Part**
  - <issue-title> **Issue Title**
  - <lpage> **Last Page**
  - <month> **Month**
  - <name> **Name of Person**
  - <name-alternatives> **Name Alternatives**
  - <object-id> **Object Identifier**
  - <page-range> **Page Ranges**
  - <part-title> **Part Title in a Citation**
  - <patent> **Patent Number, Cited**
  - <person-group> **Person Group for a Cited Publication**
  - <pub-id> **Publication Identifier for a Cited Publication**
  - <publisher-loc> **Publisher's Location**
  - <publisher-name> **Publisher's Name**

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- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.94 <elocation-id> Electronic Location Identifier

Bibliographic identifier for a document that does not have traditional printed page numbers.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

9.4.95 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.96 <equation-count> Equation Count

Number of <disp-formula> elements that appear in the document.

Attributes:

@count **Count**
@id **Document Internal Identifier**

`@xml:base` **Base**

Content model:

This is an EMPTY element

9.4.97 <era> Era of Time

A specified range of years that is named for an event, political ruler, or characterization of the timespan.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.98 <etal> Et Al.

Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.99 <event> Event in Publishing History

An event in the publication history of an article, for example, reprinting or publishing a revised online edition. This element may contain information such as a description of the event (<event-desc>), copyright information for a reprint or edition, a publication date, a URI for the article, etc.

Attributes:

`@event-type` **Type of Event**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- <event-desc> **Event Description**, zero or one
- <article-id> **Article Identifier**, zero or more
- Optionally any one of:
  - <article-version> **Article Current Version Status or Number**
  - <article-version-alternatives> **Article Current Version Alternatives**
- Any one of:
  - <pub-date> **Publication Date**, zero or more
  - <pub-date-not-available> **Publication Date Not Available Flag**, zero or one
- <date> **Date**, zero or more
- <issn> **ISSN International Standard Serial Number**, zero or more
- <issn-l> **ISSN-L (Linking ISSN)**, zero or one
- <isbn> **ISBN**, zero or more
- <permissions> **Permissions**, zero or one
- <notes> **Notes**, zero or more
- <self-uri> **URI for This Same Article Online**, zero or more

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9.4.100 <event-desc> Event Description

This is a description of an event in the publication history of an article, for example, reprinting or publishing a revised online edition. This text field may be as simple a few words or as complex as a narrative with embedded markup.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <article-id> **Article Identifier**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <isbn> **ISBN**
- <article-version> **Article Current Version Status or Number**
- <article-version-alternatives> **Article Current Version Alternatives**
- <date> **Date**
- <string-date> **Date as a String**
- <pub-date> **Publication Date**
- <pub-date-not-available> **Publication Date Not Available Flag**

9.4.101 <explanation> Explanation

An explanation of why an answer is correct, or why an option is or is not correct. An explanation may provide additional information about a question, point to text that may provide useful information, or describe why one answer might be confused with another.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@pointer-to-explained **Pointer to Object Described in Explanation**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - <address> **Address/Contact Information**
      - <alternatives> **Alternatives For Processing**
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <array> **Array (Simple Tabulation)**
      - <block-alternatives> **Block-level Alternatives**
      - <boxed-text> **Boxed Text**

- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

▪ <sec> **Section**, zero or more

- Any combination of:
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

9.4.102 <ext-link> External Link

Link to an external file or resource.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**

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- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <ruby> **Ruby Annotation Wrapper**

- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.103 <extended-by> Extended-by Model

Identification of a JATS extension that the document claims to be following.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.104 <fax> Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.105 <fig> Figure

Block of graphical or textual material that is identified as a figure, usually bearing a caption and a label such as “Figure 3.” or “Figure”.

Attributes:

@fig-type **Type of Figure**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**

`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- `<caption>` **Caption of a Figure, Table, etc.**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- Any combination of:
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**
  - `<chem-struct-wrap>` **Chemical Structure Wrapper**
  - `<disp-quote>` **Quote, Displayed**
  - `<speech>` **Speech**
  - `<statement>` **Statement, Formal**
  - `<verse-group>` **Verse Form for Poetry**
  - `<table-wrap>` **Table Wrapper**
  - `<p>` **Paragraph**
  - Lists
    - `<def-list>` **Definition List**
    - `<list>` **List**
  - `<alternatives>` **Alternatives For Processing**
  - `<array>` **Array (Simple Tabulation)**
  - `<code>` **Code**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<xref>` **X (cross) Reference**
- Any combination of:
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

9.4.106 `<fig-count>` Figure Count

Number of `<fig>` elements that appear in the document.

Attributes:

`@count` **Count**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

This is an EMPTY element

9.4.107 `<fig-group>` Figure Group

Container element for figures that are to be displayed together.

Attributes:

`@content-type` **Type of Content**

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`@id` **Document Internal Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- `<caption>` **Caption of a Figure, Table, etc.**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- Any combination of:
  - `<fig>` **Figure**
  - `<block-alternatives>` **Block-level Alternatives**
  - `<xref>` **X (cross) Reference**
  - `<alternatives>` **Alternatives For Processing**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**

9.4.108 `<fixed-case>` Fixed Case

Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**

    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.109 <floats-group> Floating Element Group

Container element for floating objects (figures, tables, text boxes, graphics, etc.) that occur within an article. Occurs outside of the narrative flow of the article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- <alternatives> **Alternatives For Processing**
- <block-alternatives> **Block-level Alternatives**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

9.4.110 <fn> Footnote

Additional information tied to a particular location in the text. This material is not considered to be part of the body of the text, but is a note used instead of, in addition to, as a source for, or as a commentary on either some body text or on an element in the metadata such as an author.

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Attributes:

`@custom-type` **Custom Attribute Value Escape Hatch**
`@fn-type` **Type of Footnote**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@symbol` **Symbol**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<p>` **Paragraph**, one or more

9.4.111 `<fn-group>` Footnote Group

Container element for footnotes that appear at the end of the document.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<fn>` **Footnote**, one or more

9.4.112 `<fpage>` First Page

Page number on which a document starts.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.113 `<front>` Front Matter

Container element for the metadata of an article and the journal in which it was published.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<journal-meta>` **Journal Metadata**
- `<article-meta>` **Article Metadata**
- `<notes>` **Notes**, zero or one

9.4.114 <front-stub> Stub Front Metadata

Reduced set of metadata for use in <sub-article> and <response>, both of which are contained within an article. Any metadata not explicitly tagged in the front-stub is inherited from <article-meta> in the enclosing article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <article-id> **Article Identifier**, zero or more
- Optionally any one of:
  - <article-version> **Article Current Version Status or Number**
  - <article-version-alternatives> **Article Current Version Alternatives**
- <article-categories> **Article Grouping Data**, zero or one
- <title-group> **Title Group**, zero or one
- Any combination of:
  - <contrib-group> **Contributor Group**
  - <aff> **Affiliation**
  - <aff-alternatives> **Affiliation Alternatives**
- <author-notes> **Author Note Group**, zero or one
- Any one of:
  - <pub-date> **Publication Date**, zero or more
  - <pub-date-not-available> **Publication Date Not Available Flag**, zero or one
- <volume> **Volume Number**, zero or more
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or more
- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-title-group> **Issue Title Group**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one
- <volume-issue-group> **Volume Issue Grouping**, zero or more
- <isbn> **ISBN**, zero or more
- <supplement> **Supplement Information**, zero or one
- Optionally any one of:
  - The following, in order:
    - <fpage> **First Page**
    - <lpage> **Last Page**, zero or one
    - <page-range> **Page Ranges**, zero or one
  - <elocation-id> **Electronic Location Identifier**
- Any combination of:
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
  - <product> **Product Information**
  - <supplementary-material> **Supplementary Material Metadata**
- <history> **History: Document History**, zero or one
- <pub-history> **Publication History**, zero or one
- <permissions> **Permissions**, zero or one
- <self-uri> **URI for This Same Article Online**, zero or more
- Any combination of:
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <abstract> **Abstract**, zero or more
- <trans-abstract> **Translated Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more

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- <funding-group> **Funding Group**, zero or more
- <support-group> **Support Group**, zero or more
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

9.4.115 <funding-group> Funding Group

Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <award-group> **Award Group**, zero or more
- <funding-statement> **Funding Statement**, zero or more
- <open-access> **Open Access**, zero or more

9.4.116 <funding-source> Funding Source

Agency or organization that funded the research on which a work was based.

Attributes:

@country **Country**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@source-type **Source Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**

    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
  - Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**

9.4.117 <funding-statement> Funding Statement

Displayable prose statement that describes the funding for the research on which a work was based.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.118 <given-names> Given (First) Names

All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.

Attributes:

@id **Document Internal Identifier**

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`@initials` **Initials for Personal Names**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.119 <glossary> Glossary Elements List

Section whose content is typically a list of terms and definitions, usually tagged as one or more two-part lists called <def-list>. Typically part of the back matter of a document.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- <glossary> **Glossary Elements List**, zero or more

9.4.120 <glyph-data> Glyph Data for a Private Character

Most characters in an XML document can be expressed as regular Unicode® codes. Characters not in the Unicode Standard tables have traditionally been expressed as explicit font calls (non-portable), created as inline graphics, or defined in one of the Unicode private-use areas where users may define their own characters. The <glyph-data> element is used when there is known to be no font available to render a private-use character. This element provides information on the actual glyph that is associated with the private-use character.

Attributes:

@fontchar **Font Character Table Offset**
@fontname **Font Name**
@format **Format**
@id **Document Internal Identifier**
@resolution **Resolution of the Glyph Bitmap**
@xml:base **Base**
@xml:space **Space**
@x-size **X Size of the Glyph**
@y-size **Y Size of the Glyph**

Content model:

Text, numbers, or special characters

9.4.121 <glyph-ref> Glyph Reference for a Private Character

Once a private character has been declared using a <glyph-data> element, the character need not be defined with the same <glyph-data> element every time it is used. The character can be reused by using the <glyph-ref> element to point to the full <glyph-data> element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <glyph-ref> element to point to the @id attribute of an existing <glyph-data> element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.

Attributes:

@glyph-data **Glyph Data Character Being Referenced**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.122 <gov> Government Report, Cited

Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

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    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**

9.4.123 <graphic> Graphic

Description of and pointer to an external file containing a still image.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- <abstract> **Abstract**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <caption> **Caption of a Figure, Table, etc.**
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <kwd-group> **Keyword Group**
- <subj-group> **Subject Group**
- <xref> **X (cross) Reference**

9.4.124 <history> History: Document History

Container element for dates related to the processing history of the document (for example, received date, accepted date).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<date> **Date**, one or more

9.4.125 <hr> Horizontal Rule

An explicit horizontal rule.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.126 <index-term> Index Term

The index term to be embedded into the narrative of an article so that an Index can be created programmatically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@index-type **Type of Index**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <term> **Definition List: Term**
- Any one of:
  - <index-term> **Index Term**
  - Any combination of:
    - <see> **See**
    - <see-also> **See-Also**

9.4.127 <index-term-range-end> Index Term Range End

The marker for the end of a range when an index term embedded into the narrative of a document is the start of a range.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.128 <inline-formula> Formula, Inline

Mathematical equation, expression, or formula that is to be displayed inline. The mathematics itself can be expressed as ASCII characters, as a graphic, or using TeX, LaTeX, or MathML mathematics expressions.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.129 <inline-graphic> Graphic, Inline

Description of and pointer to an external graphic that is displayed or set in the same line as the text.

Attributes:

@baseline-shift **Baseline Shift**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:

- Any combination of:
  - Accessibility Elements

- <alt-text> **Alternate Text Name (for a figure, etc.)**
- <long-desc> **Long Description**

9.4.130 <inline-media> Inline Media Object

Description of and pointer to an external file that holds an inline media object (for example, a pronunciation file for a word or character).

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.131 <inline-supplementary-material> Inline Supplementary Material Metadata

Inline description of, and possibly a pointer to, an external file that provides supplementary information for the document.

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Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.132 `<institution>` Institution Name: in an Address

Name of an institution or organization (for example, a university or corporation).

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**

`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.133 `<institution-id>` Institution Identifier

A externally defined institutional identifier, for example, a publisher-defined identifier or one defined by an ISO standard, such as “ISNI” or “ISLL”.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@institution-id-type` **Type of Institution Identifier**
`@specific-use` **Specific Use**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.134 `<institution-wrap>` Institution Wrapper

A wrapper element to hold both the name of an institution (`<institution>`) and any identifiers for that institution (`<institution-id>`), for example, an INSI or Ringgold ID.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any combination of:
- `<institution>` **Institution Name: in an Address**
- `<institution-id>` **Institution Identifier**

9.4.135 `<isbn>` ISBN

International Standard Book Number, the international code for identifying a particular product form or edition of a publication, typically a monographic publication.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@publication-format` **Format of Publication**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.136 `<issn>` ISSN International Standard Serial Number

Standard code assigned by the ISSN network for the unique identification of serials and other continuing resources in a defined medium version.

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Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@publication-format` **Format of Publication**
`@pub-type` **Type of Publication**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.137 <issn-l> ISSN-L (Linking ISSN)

An ISSN designated by an ISSN Centre to group together the different media versions of a work. Since a single ISSN-L is assigned no matter how many media formats of a work there are, the ISSN-L can be used to link among the different media versions of the work or continuing resource, for example, both the printed and online versions of the work.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.138 <issue> Issue Number

Issue number of a journal, or in rare instances, a book.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.139 <issue-id> Issue Identifier

Name or identifier of an entire journal issue (for example, a DOI).

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:
Text, numbers, or special characters

9.4.140 <issue-part> Issue Part

Number, name, or other identifier of a sub-part of a journal issue.

Attributes:
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:
Text, numbers, or special characters, zero or more

9.4.141 <issue-sponsor> Issue Sponsor

Sponsor for an issue of the journal.

Attributes:
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:
Text, numbers, or special characters, zero or more

9.4.142 <issue-subtitle> Issue Subtitle

Records a subtitle for an issue of the journal.

Attributes:
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:
Text, numbers, or special characters, zero or more

9.4.143 <issue-title> Issue Title

Theme or special title for a journal issue.

Attributes:
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:
Text, numbers, or special characters, zero or more

9.4.144 <issue-title-group> Issue Title Group

Grouping element to associate issue title metadata (such as the issue title and subtitle) for a single issue.

Attributes:
@content-type **Type of Content**

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`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<issue-title>` **Issue Title**
- `<issue-subtitle>` **Issue Subtitle**, zero or more
- `<trans-title-group>` **Translated Title Group**, zero or more

9.4.145 `<italic>` Italic

Used to mark text that should appear in an italic or slanted font.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@toggle` **Toggle Switch**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**

    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.146 <journal-id> Journal Identifier

Short code or abbreviation used as an identifier for a journal.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.147 <journal-meta> Journal Metadata

Container element for metadata about the journal in which the article was published.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <journal-id> **Journal Identifier**, one or more
- <journal-title-group> **Journal Title Group**, zero or more
- Any combination of:
    - <contrib-group> **Contributor Group**
    - <aff> **Affiliation**
    - <aff-alternatives> **Affiliation Alternatives**
- <issn> **ISSN International Standard Serial Number**, one or more
- <issn-l> **ISSN-L (Linking ISSN)**, zero or one
- <isbn> **ISBN**, zero or more
- <publisher> **Publisher**, zero or one
- <notes> **Notes**, zero or more
- <self-uri> **URI for This Same Article Online**, zero or more

9.4.148 <journal-subtitle> Journal Subtitle (Full)

Full subtitle of the journal in which the article was published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.149 <journal-title> Journal Title (Full)

Full title of the journal in which the article was published.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.150 <journal-title-group> Journal Title Group

Container element for the titles of the journal in which the article was published.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<journal-title>` **Journal Title (Full)**, zero or more
- `<journal-subtitle>` **Journal Subtitle (Full)**, zero or more
- `<trans-title-group>` **Translated Title Group**, zero or more
- `<abbrev-journal-title>` **Abbreviated Journal Title**, zero or more

9.4.151 <kwd> Keyword

A keyword is a finding aid used to record one subject term, key phrase, abbreviation, indexing word, taxonomic structure, or other expression that is associated with a whole structure (such as an article). Keywords can be used for identification, searching, and indexing purposes. A keyword element (`<kwd>`) may contain a repetition of words found in the structure, or it may contain broader terms, narrower terms, related terms, or taxonomic identifiers used to find the structure in a search or provide semantic classification of the text by mapping a specific structure to a taxonomy.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**

- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.152 <kwd-group> Keyword Group

Container element for one set of keywords (such as <kwd>s, <nested-kwd>s, or <compound-kwd>s) used to describe a document.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@kwd-group-type **Type or Kind of Keywords in the Group**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
  - <kwd> **Keyword**
  - <compound-kwd> **Compound Keyword**
  - <nested-kwd> **Nested Keyword**

9.4.153 <label> Label (of an Equation, Figure, Reference, etc.)

Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Baseline Change Elements

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- ◦ <sub> **Subscript**
- ◦ <sup> **Superscript**

9.4.154 <license> License Information

Set of conditions under which the content may be used, accessed, and distributed.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@license-type **Type of License**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:
- One or more of any of:
  - ◦ <ali:license_ref> **License Reference (NISO and Access License Indicators)**
  - ◦ <license-p> **License Paragraph**

9.4.155 <license-p> License Paragraph

Paragraph of text within the description of a <license>.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - ◦ <address> **Address/Contact Information**
  - ◦ <answer> **Answer to a Question**
  - ◦ <answer-set> **Answer Set**
  - ◦ <array> **Array (Simple Tabulation)**
  - ◦ <block-alternatives> **Block-level Alternatives**
  - ◦ <boxed-text> **Boxed Text**
  - ◦ <chem-struct-wrap> **Chemical Structure Wrapper**
  - ◦ <code> **Code**
  - ◦ <explanation> **Explanation**
  - ◦ <fig> **Figure**
  - ◦ <fig-group> **Figure Group**
  - ◦ <graphic> **Graphic**

- ◦ <media> **Media Object**
- ◦ <preformat> **Preformatted Text**
- ◦ <question> **Question**
- ◦ <question-wrap> **Question Wrapper**
- ◦ <question-wrap-group> **Question Wrapper Group**
- ◦ <supplementary-material> **Supplementary Material Metadata**
- ◦ <table-wrap> **Table Wrapper**
- ◦ <table-wrap-group> **Table Wrapper Group**
- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
  - ◦ <citation-alternatives> **Citation Alternatives**
  - ◦ <element-citation> **Element Citation**
  - ◦ <mixed-citation> **Mixed Citation**
  - ◦ <nlm-citation> **NLM Citation**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements

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    - <sub> **Subscript**
    - <sup> **Superscript**
- <price> **Price**

9.4.156 <list> List

Sequence of two or more items, which may or may not be ordered.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <list-item> **List Item**, one or more

9.4.157 <list-item> List Item

Single item (one entry) in a list of items.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
    - <p> **Paragraph**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**

9.4.158 <long-desc> Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box, typically used to make the object accessible.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**

`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.159 <lpage> Last Page

Page number on which a document ends.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.160 <media> Media Object

Description of and pointer to an external file that holds a media object (for example, an animation, a movie).

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- `<abstract>` **Abstract**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<caption>` **Caption of a Figure, Table, etc.**
- Ownership Elements
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**
- `<object-id>` **Object Identifier**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- `<kwd-group>` **Keyword Group**
- `<subj-group>` **Subject Group**
- `<xref>` **X (cross) Reference**

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9.4.161 <meta-name> Metadata Data Name for Custom Metadata

Name of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.162 <meta-value> Metadata Data Value for Custom Metadata

Value of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**

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- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
- ◦ <sub> **Subscript**
- ◦ <sup> **Superscript**

9.4.163 <milestone-end> Milestone End

End of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

This is an EMPTY element

9.4.164 <milestone-start> Milestone Start

Start of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

This is an EMPTY element

9.4.165 <mixed-citation> Mixed Citation

Bibliographic description of a work. Includes a combination of bibliographic reference elements and untagged text. Spacing and punctuation are preserved.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@use-type **Type of Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**

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- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.166 <mml:math> Math (MathML Tag Set)

Use documentation for the Mathematical Markup Language (MathML) Tag Set (https://www.w3.org/TR/MathML3/ or https://www.w3.org/TR/MathML2/).

Attributes:

@xmlns:mml **MathML Namespace Declaration**

9.4.167 <monospace> Monospace Text (Typewriter Text)

Used to mark text that should appear in a non-proportional font, such as courier.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**

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- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.168 <month> Month

Names one of the months of the year, such as "July" or "07".

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.169 <name> Name of Person

Container element for the component elements of personal names, such as a <surname>.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@name-style` **Name Style**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- Any one of:
  - The following, in order:
    - `<surname>` **Surname**
    - `<given-names>` **Given (First) Names**, zero or one
  - `<given-names>` **Given (First) Names**
- `<prefix>` **Prefix**, zero or one
- `<suffix>` **Suffix**, zero or one

9.4.170 `<name-alternatives>` Name Alternatives

Container element for more than one version of a personal name, the element `<name>` (for example, the name written in both Japanese Kana characters and the Latin alphabet).

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any one of:
- One or more of any of:
  - `<name>` **Name of Person**
  - `<string-name>` **Name of Person (Unstructured)**

9.4.171 `<named-content>` Named Special (Subject) Content

Word or phrase whose content/subject matter has distinct semantics or content-related significance.

Attributes:

`@alt` **Alternative Text**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements

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- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**

- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
  - <table-wrap-group> **Table Wrapper Group**
- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**

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- ◦ <milestone-start> **Milestone Start**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
- ◦ <fn> **Footnote**
- ◦ <target> **Target of an Internal Link**
- ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
- ◦ <sub> **Subscript**
- ◦ <sup> **Superscript**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

9.4.172 <nested-kwd> Nested Keyword

A hierarchically-structured keyword, such as a keywords from a controlled vocabulary.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

The following, in order:
- One or more of any of:
- ◦ <kwd> **Keyword**
- ◦ <compound-kwd> **Compound Keyword**
- <nested-kwd> **Nested Keyword**, zero or more

9.4.173 <nlm-citation> NLM Citation

This element is deprecated. Avoid using it; use <element-citation>.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:
- Any combination of:
- ◦ <person-group> **Person Group for a Cited Publication**
- ◦ <collab> **Collaborative (Group) Author**

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- Any combination of:
  - <article-title> **Article Title**
  - <trans-title> **Translated Title**
- <source> **Source**, zero or one
- <patent> **Patent Number, Cited**, zero or one
- <trans-source> **Translated Source**, zero or one
- <year> **Year**, zero or one
- Any one of:
  - The following, in order:
    - <month> **Month**, zero or one
    - <day> **Day**, zero or one
    - <time-stamp> **Time Stamp for Cited Work**, zero or one
  - <season> **Season**, zero or one
- <access-date> **Access Date for Cited Work**, zero or one
- <volume> **Volume Number**, zero or one
- <edition> **Edition Statement, Cited**, zero or one
- <conf-name> **Conference Name**, zero or one
- <conf-date> **Conference Date**, zero or one
- <conf-loc> **Conference Location**, zero or one
- Any combination of:
  - <issue> **Issue Number**
  - <supplement> **Supplement Information**
- <publisher-loc> **Publisher's Location**, zero or one
- <publisher-name> **Publisher's Name**, zero or one
- Zero or more occurrences of the following, in order:
  - <fpage> **First Page**, zero or one
  - <lpage> **Last Page**, zero or one
- <page-count> **Page Count**, zero or one
- <series> **Series**, zero or one
- <comment> **Comment in a Citation**, zero or more
- <pub-id> **Publication Identifier for a Cited Publication**, zero or more
- <annotation> **Annotation in a Citation**, zero or one

9.4.174 <note> Note in a Reference List

Non-citation content inside a bibliographic reference list.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- One or more of any of:
  - <p> **Paragraph**
  - <product> **Product Information**

9.4.175 <notes> Notes

Section-like container element for one or more notes that are not part of the narrative flow (for example, note added in proof, dedication).

Attributes:

@id **Document Internal Identifier**
@notes-type **Type of Notes**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- <sec> **Section**, zero or more
- Any combination of:
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

9.4.176 <object-id> Object Identifier

Unique identifier (such as a DOI or URI) for a component *within* an article (for example, for a figure or a table).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:base **Base**

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Content model:

Text, numbers, or special characters

9.4.177 <on-behalf-of> On Behalf of

When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work "on behalf of" that organization or group, and this element holds the name of the organization or group.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

9.4.178 <open-access> Open Access

Open access provisions that apply to a work or the funding information that provided the open access provisions.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

9.4.179 <option> Answer Option (for a question)

One of the possible answer choices for a multiple-choice question.

Attributes:

@content-type **Type of Content**
@correct **Correct Option Flag**
@id **Document Internal Identifier**

`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- Any one of:
  - `<sec>` **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - `<address>` **Address/Contact Information**
      - `<alternatives>` **Alternatives For Processing**
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<array>` **Array (Simple Tabulation)**
      - `<block-alternatives>` **Block-level Alternatives**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**
      - `<question-wrap-group>` **Question Wrapper Group**
      - `<supplementary-material>` **Supplementary Material Metadata**
      - `<table-wrap>` **Table Wrapper**
      - `<table-wrap-group>` **Table Wrapper Group**
      - `<disp-formula>` **Formula, Display**
      - `<disp-formula-group>` **Formula, Display Group**
      - Lists
        - `<def-list>` **Definition List**
        - `<list>` **List**
      - Math Elements
        - `<tex-math>` **TeX Math Equation**
        - `<mml:math>` **Math (MathML Tag Set)**
      - `<p>` **Paragraph**
      - `<related-article>` **Related Article Information**
      - `<related-object>` **Related Object Information**
      - `<disp-quote>` **Quote, Displayed**
      - `<speech>` **Speech**
      - `<statement>` **Statement, Formal**
      - `<verse-group>` **Verse Form for Poetry**
    - `<sec>` **Section**, zero or more
- Any combination of:
  - `<fn-group>` **Footnote Group**
  - `<glossary>` **Glossary Elements List**
  - `<ref-list>` **Reference List (Bibliographic)**
- `<explanation>` **Explanation**, zero or more

9.4.180 `<overline>` Overline

Used to mark text that should appear with a horizontal line above each character.

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Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@toggle` **Toggle Switch**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.181 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
  - <table-wrap-group> **Table Wrapper Group**
- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**

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- <open-access> **Open Access**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.182 <page-count> Page Count

Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.183 <page-range> Page Ranges

Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.184 <part-title> Part Title in a Citation

Title of a *portion* of a larger resource (for example, a chapter in a book, module in a course, episode of a podcast or television series) described in a bibliographic reference.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.185 <patent> Patent Number, Cited

Identification information for a patent in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

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`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.186 <permissions> Permissions

Container element for copyright and license information for the entire article or for the object which contains the `<permissions>` element.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<copyright-statement>` **Copyright Statement**, zero or more
- `<copyright-year>` **Copyright Year**, zero or more
- `<copyright-holder>` **Copyright Holder**, zero or more
- Any combination of:
  - `<ali:free_to_read>` **Free to Read (NISO Access and License Indicators)**
  - `<license>` **License Information**

9.4.187 <person-group> Person Group for a Cited Publication

Container element for one or more contributors in a bibliographic reference.

Attributes:

`@custom-type` **Custom Attribute Value Escape Hatch**
`@id` **Document Internal Identifier**
`@person-group-type` **Type of People in the Person Group**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Contributor Naming Elements
  - `<anonymous>` **Anonymous**
  - `<collab>` **Collaborative (Group) Author**
  - `<collab-alternatives>` **Collaboration Alternatives**
  - `<name>` **Name of Person**
  - `<name-alternatives>` **Name Alternatives**
  - `<string-name>` **Name of Person (Unstructured)**
- `<aff>` **Affiliation**
- `<aff-alternatives>` **Affiliation Alternatives**
- `<etal>` **Et Al.**
- `<role>` **Role or Function Title of Contributor**

9.4.188 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.189 <postal-code> Postal Code

A postal number such as a zip-code or postal code used to address physical mail.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.190 <prefix> Prefix

Honorifics or other qualifiers that usually precede a person's name (for example, Professor, Rev., President, Senator, Dr., Sir, The Honorable).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.191 <preformat> Preformatted Text

Text in which spaces, tabs, and line feeds must be preserved. Content is typically displayed in monofont to preserve character alignment.

Attributes:

@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@preformat-type **Type of Preformatted Text**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**

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- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**

- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.192 <price> Price

Sale price or licensing fees of a work.

Attributes:

@content-type **Type of Content**
@currency **Currency**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**

9.4.193 <principal-award-recipient> Principal Award Recipient

Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <contrib-id> **Contributor Identifier**
- <name> **Name of Person**

- <name-alternatives> **Name Alternatives**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <string-name> **Name of Person (Unstructured)**

9.4.194 <principal-investigator> Principal Investigator

Individual(s) responsible for the intellectual content of the work reported in the document.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <contrib-id> **Contributor Identifier**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <string-name> **Name of Person (Unstructured)**

9.4.195 <private-char> Private Character (Custom or Unicode)

Custom character supplied by a publisher, or a custom character from the Unicode private-use area, for which a bitmap or other representation of the glyph is included in or with the XML. The glyph may be represented as an inline graphic, an explicit bitmap glyph, or a reference to a previously defined character.

Attributes:

@description **Description of a Private Character**
@id **Document Internal Identifier**
@name **Name (Private Character)**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any one of:
- Any one of:
  - <glyph-data> **Glyph Data for a Private Character**
  - <glyph-ref> **Glyph Reference for a Private Character**
- <inline-graphic> **Graphic, Inline**, zero or more

9.4.196 <processing-meta> Processing Metadata

Optional container element, used to hold the processing metadata elements, which describe processing information descriptive of the XML-tagged document (document instance).

Attributes:

@base-tagset **Base Tag Set Name**
@id **Document Internal Identifier**
@math-representation **Math Representation in This Document**
@mathml-version **MathML Version**
@table-model **Table Model Used**
@tagset-family **JATS Tag Set Family**
@xml:base **Base**

Content model:

The following, in order:
- <restricted-by> **Restricted-by Model**, zero or more
- <extended-by> **Extended-by Model**, zero or more
- <custom-meta-group> **Custom Metadata Group**, zero or more

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9.4.197 <product> Product Information

Container element for the metadata concerning one product (for example, a book, software package, website, or hardware component) discussed in an article.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@product-type **Type of Product**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <break> **Line Break**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <price> **Price**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**

- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.198 <pub-date> Publication Date

Container element for the parts of a single date associated with an article's publication (for example, date preprint was released, date article was published in print).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@calendar **Calendar**
@date-type **Type of Date**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@pub-type **Type of Publication**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- Optionally any one of:
    - The following, in order:
        - <day> **Day**, zero or one
        - <month> **Month**, zero or one
    - <season> **Season**
- <year> **Year**
- <era> **Era of Time**, zero or one

9.4.199 <pub-date-not-available> Publication Date Not Available Flag

An empty element which signals that the publication date (<pub-date>) is not available. This does *not* mean the article is unpublished, merely that the publication date cannot be supplied.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.200 <pub-history> Publication History

Used as a container for events related to the processing history of the document, such as the date a manuscript was submitted, the reprint date for an article, etc.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any one of:
- <event> **Event in Publishing History**, one or more

9.4.201 <pub-id> Publication Identifier for a Cited Publication

Identifier of a publication in a bibliographic reference or product description.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@custom-type **Custom Attribute Value Escape Hatch**

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

9.4.202 <publisher> Publisher

Container element for information about the person, company, or other entity that published a work.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any one of:
- The following sequence (in order), one or more times:
  - <publisher-name> **Publisher's Name**
  - <publisher-loc> **Publisher's Location**, zero or one

9.4.203 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**

9.4.204 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

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Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**

9.4.205 `<question>` Question

A question (request for an answer) used in the text or as part of a quiz, exam, etc.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@question-response-type` **Type of Answer(s) to be Given to the Question**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<object-id>` **Object Identifier**, zero or more
- `<sec-meta>` **Section Metadata**, zero or one
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- Any one of:
  - `<sec>` **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - Paragraph-level Display Elements
        - `<address>` **Address/Contact Information**
        - `<answer>` **Answer to a Question**
        - `<answer-set>` **Answer Set**
        - `<array>` **Array (Simple Tabulation)**
        - `<block-alternatives>` **Block-level Alternatives**
        - `<boxed-text>` **Boxed Text**
        - `<chem-struct-wrap>` **Chemical Structure Wrapper**
        - `<code>` **Code**
        - `<explanation>` **Explanation**
        - `<fig>` **Figure**
        - `<fig-group>` **Figure Group**
        - `<graphic>` **Graphic**
        - `<media>` **Media Object**
        - `<preformat>` **Preformatted Text**
        - `<question>` **Question**
        - `<question-wrap>` **Question Wrapper**
        - `<question-wrap-group>` **Question Wrapper Group**
        - `<supplementary-material>` **Supplementary Material Metadata**
        - `<table-wrap>` **Table Wrapper**
        - `<table-wrap-group>` **Table Wrapper Group**
      - `<alternatives>` **Alternatives For Processing**
      - `<disp-formula>` **Formula, Display**
      - `<disp-formula-group>` **Formula, Display Group**
      - Lists
        - `<def-list>` **Definition List**

        - <list> **List**
      - Math Elements
        - <tex-math> **TeX Math Equation**
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
    - <sec> **Section**, zero or more
- <option> **Answer Option (for a question)**, zero or more
- Any combination of:
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

9.4.206 <question-preamble> Question Preamble

An element containing setup/preamble information that is shared by several questions. For example, a <question-preamble> might contain a diagram of a triangle (with several labeled parts) that is shared by questions such as "What is angle 'a'?", or "Given only the information in the diagram, can you calculate the length of the line from 'b' to 'd'?".

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**

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- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

• <sec> **Section**, zero or more

9.4.207 <question-wrap> Question Wrapper

Wrapper element used to contain a question and its answers and/or explanations concerning the question.

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <question> **Question**
- Optionally any one of:
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
- <explanation> **Explanation**, zero or more

9.4.208 <question-wrap-group> Question Wrapper Group

A container element used to hold a group of <question-wrap> elements, for example, when all the questions share a common preamble (setup).

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- <question-preamble> **Question Preamble**, zero or one
- <question-wrap> **Question Wrapper**, one or more

9.4.209 <rb> Ruby Base Text

This element is one half of a Ruby annotation (<ruby>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (<rt>) should be applied.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**

9.4.210 <ref> Reference Item

One item in a bibliographic list.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- One or more of any of:
  - Citation Elements
    - <citation-alternatives> **Citation Alternatives**
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**
  - <note> **Note in a Reference List**

9.4.211 <ref-count> Reference Count

Number of references or citations that appear in a bibliographic reference list.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.212 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<answer>` **Answer to a Question**
    - `<answer-set>` **Answer Set**
    - `<array>` **Array (Simple Tabulation)**
    - `<block-alternatives>` **Block-level Alternatives**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<code>` **Code**
    - `<explanation>` **Explanation**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<question>` **Question**
    - `<question-wrap>` **Question Wrapper**
    - `<question-wrap-group>` **Question Wrapper Group**
    - `<supplementary-material>` **Supplementary Material Metadata**
    - `<table-wrap>` **Table Wrapper**
    - `<table-wrap-group>` **Table Wrapper Group**
  - `<alternatives>` **Alternatives For Processing**
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**
  - Lists
    - `<def-list>` **Definition List**
    - `<list>` **List**
  - Math Elements
    - `<tex-math>` **TeX Math Equation**
    - `<mml:math>` **Math (MathML Tag Set)**
  - `<p>` **Paragraph**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
  - `<disp-quote>` **Quote, Displayed**
  - `<speech>` **Speech**
  - `<statement>` **Statement, Formal**
  - `<verse-group>` **Verse Form for Poetry**
- `<ref>` **Reference Item**, zero or more
- `<ref-list>` **Reference List (Bibliographic)**, zero or more

9.4.213 `<related-article>` Related Article Information

Description of a journal article related to the content but published separately. May include a link to the related article.

Attributes:

`@elocation-id` **Elocation Identifier**
`@ext-link-type` **Type of External Link**

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@issue **Issue Number of a Related Article**
@journal-id **Journal Identifier of a Related Article**
@journal-id-type **Type of Journal Identifier**
@page **Page of Related Article**
@related-article-type **Type of Related Article**
@specific-use **Specific Use**
@vol **Volume of Related Article**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <journal-id> **Journal Identifier**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**

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- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.214 <related-object> Related Object Information

Description of an object (for example, book, book chapter, figure, or table) related to the article content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Component Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@link-type **Type of Link (for a Related Object)**
@object-id **Object Identifier**
@object-id-type **Object Identifier Type**
@object-type **Object Type**
@source-id **Source Identifier**
@source-id-type **Source Identifier Type**
@source-type **Source Type**

@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**

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- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.215 <resource-group> Resource Group

Container element to hold the descriptions of specific resources supplied in the non-financial support of the work described in this article.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- One or more of any of:
  - <resource-name> **Resource Name**
  - <resource-wrap> **Resource Wrap**

9.4.216 <resource-id> Resource Identifier

An external, ideally machine-readable, identifier such as a Research Resource Identifier, for a specific resource provided in support of the work described in this article.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@resource-id-type **Resource Identifier Type**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**

`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.217 <resource-name> Resource Name

A displayable name of or description for a specific resource provided in support of the work described in this article.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.218 <resource-wrap> Resource Wrap

A wrapper element to hold together the name of a resource (<resource-name>) and one or more external identifiers for that resource (<resource-id>) such as a Research Resource Identifier.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- <resource-name> **Resource Name**
- <resource-id> **Resource Identifier**, zero or more

9.4.219 <response> Response

Reply, response, or commentary concerning the journal article. In the typical case, the response is included in the same XML package as the original article, attached at the end of the article proper. Metadata that differs from that of the original article (for example, title, author) may be captured using the <front-stub> element; if the <front-stub> element is used, any metadata not specifically tagged is inherited from the original article.

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Attributes:

`@id` **Document Internal Identifier**
`@response-type` **Type of Response**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<processing-meta>` **Processing Metadata**, zero or one
- Any one of:
  - `<front>` **Front Matter**
  - `<front-stub>` **Stub Front Metadata**
- `<body>` **Body of the Document**, zero or one
- `<back>` **Back Matter**, zero or one
- `<floats-group>` **Floating Element Group**, zero or one

9.4.220 `<restricted-by>` Restricted-by Model

Identification of one of the guidelines or other restrictions (such as a tighter subset schema) the document claims to be following.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@designator` **Designator**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.221 `<role>` Role or Function Title of Contributor

Title or role of a contributor to a work (for example, author, principle investigator, illustrator, research associate, conceptualization).

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@degree-contribution` **Degree of Contribution**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

9.4.222 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**

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- ◦ <inline-formula> **Formula, Inline**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.223 <rt> Ruby Textual Annotation

This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be as small as a single character.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.224 <ruby> Ruby Annotation Wrapper

An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains some of the document narrative text (inside a Ruby Base <rb> element) and applies/associates a Ruby Textual Annotation (inside an <rt> element to that base text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- <rb> **Ruby Base Text**
- <rt> **Ruby Textual Annotation**

9.4.225 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.226 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

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- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.227 <season> Season

Season of publication (for example, Spring, Third Quarter).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.228 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:

@id **Document Internal Identifier**
@sec-type **Type of Section**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <sec-meta> **Section Metadata**, zero or one
- Any one of:
  - The following, in order:
    - <label> **Label (of an Equation, Figure, Reference, etc.)**
    - <title> **Title**, zero or one
  - <title> **Title**
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <array> **Array (Simple Tabulation)**
    - <block-alternatives> **Block-level Alternatives**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
  - <alternatives> **Alternatives For Processing**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - <p> **Paragraph**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- <sec> **Section**, zero or more
- Any combination of:
  - <fn-group> **Footnote Group**
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

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9.4.229 <sec-meta> Section Metadata

Container element for section-level metadata that is different from the parent document.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <contrib-group> **Contributor Group**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- <permissions> **Permissions**, zero or one

9.4.230 <see> See

Used in an embedded index entry to hold preferred terms that make "See" references in a generated index.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**

- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

9.4.231 <see-also> See-Also

Used in an embedded index entry to hold preferred terms that make “See Also” references in a generated index.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**

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    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

9.4.232 <self-uri> URI for This Same Article Online

URI for another version of a document. This element may be used when the document is available in multiple forms (for example, a printed article and in its expanded version with additional graphics available online).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.233 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**

9.4.234 `<series-text>` Series Text: Header Text to Describe

Textual description of the series of articles that is named in a `<series-title>` element.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**

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9.4.235 <series-title> Series Title

Title of the journal series (bibliographic) or series of articles internal to one issue of a journal.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

9.4.236 <sig> Signature

One contributor's signature and associated material (such as a text restatement of the affiliation) inside a signature block.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**

    - <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <break> **Line Break**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- <graphic> **Graphic**
- <media> **Media Object**

9.4.237 <sig-block> Signature Block

Area of text and/or graphical material placed at the end of the body of a document or document component to hold the graphical signature or description of the person(s) responsible for or attesting to the content.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- <break> **Line Break**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- <graphic> **Graphic**
- <media> **Media Object**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sig> **Signature**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.238 <size> Size

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@units **Units**

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`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.239 <source> Source

Title of the resource (for example, journal, book, podcast, conference proceedings, radio or TV show) that contains (is the source of) the material being cited in a bibliographic reference or product. In the case of a resource that has titles at multiple hierarchical levels, this is the title of the largest titled resource (e.g., the TV show name and not the episode title).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.240 <speaker> Speaker

One who utters one segment of a speech or dialog.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

9.4.241 <speech> Speech

One exchange (a single speech) in a real or imaginary conversation between two or more entities.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <speaker> **Speaker**
- <p> **Paragraph**, one or more

9.4.242 <state> State or Province

The name of a state, province, territory, or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, district, or parish. The names for such a unit vary geopolitically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.243 <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**

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`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- One or more of any of:
  - `<p>` **Paragraph**
  - `<statement>` **Statement, Formal**
- Any combination of:
  - Ownership Elements
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

9.4.244 `<std>` Standard, Cited

Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<day>` **Day**
- `<month>` **Month**
- `<pub-id>` **Publication Identifier for a Cited Publication**
- `<source>` **Source**
- `<std-organization>` **Standards Organization**
- `<year>` **Year**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

9.4.245 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.246 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements

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    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

9.4.247 <string-date> Date as a String

Date represented as text.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**

9.4.248 <string-name> Name of Person (Unstructured)

Container element for personal names captured with mixed-content where the order of the name components is not enforced.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@name-style **Name Style**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**

9.4.249 <styled-content> Styled Special (Subject) Content

Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace, or any of the other emphasis elements; and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@toggle **Toggle Switch**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <array> **Array (Simple Tabulation)**
  - <block-alternatives> **Block-level Alternatives**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
  - <table-wrap-group> **Table Wrapper Group**
- <alternatives> **Alternatives For Processing**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

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- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
  - ◦ <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- Math Elements
  - ◦ <tex-math> **TeX Math Equation**
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

9.4.250 <sub> Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**

- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.251 <sub-article> Sub-article

An article that is completely contained inside another article.

Attributes:

@article-type **Type of Article**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- Any one of:
  - <front> **Front Matter**
  - <front-stub> **Stub Front Metadata**
- <body> **Body of the Document**, zero or one
- <back> **Back Matter**, zero or one
- <floats-group> **Floating Element Group**, zero or one
- Any one of:
  - <sub-article> **Sub-article**, zero or more
  - <response> **Response**, zero or more

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9.4.252 <subj-group> Subject Group

Container element for the subject matter designations describing a document's content or a component document's content. Subjects are used to organize documents into groupings (potentially hierarchical groupings) for display or print.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@subj-group-type **Type of Subject Group**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- One or more of any of:
  - <subject> **Subject Grouping Name**
  - <compound-subject> **Compound Subject Name**
- <subj-group> **Subject Group**, zero or more

9.4.253 <subject> Subject Grouping Name

Name of one subject or topic used to describe an article. Such topics and groupings of topics are typically used to provide headings for groups of documents or document components in a printed, or online, generated Table of Contents.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**

- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.254 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <break> **Line Break**

9.4.255 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.256 <sup> Superscript

Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**

- <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.257 <supplement> Supplement Information

Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements

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    - <sub> **Subscript**
    - <sup> **Superscript**
- <contrib-group> **Contributor Group**
- <title> **Title**

9.4.258 <supplementary-material> Supplementary Material Metadata

Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
    - Accessibility Elements
        - <alt-text> **Alternate Text Name (for a figure, etc.)**
        - <long-desc> **Long Description**
    - Linking Elements
        - <email> **Email Address**
        - <ext-link> **External Link**
        - <uri> **Uniform Resource Identifier (URI)**
- Any combination of:
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <disp-quote> **Quote, Displayed**
    - <speech> **Speech**
    - <statement> **Statement, Formal**
    - <verse-group> **Verse Form for Poetry**
    - <table-wrap> **Table Wrapper**
    - <p> **Paragraph**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**
    - <alternatives> **Alternatives For Processing**
    - <array> **Array (Simple Tabulation)**
    - <code> **Code**

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- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <xref> **X (cross) Reference**

• Any combination of:
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**

9.4.259 <support-description> Support Description

A displayable prose statement that describes some non-financial support given for the research on which a work was based.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
• <p> **Paragraph**, one or more

9.4.260 <support-group> Support Group

Container element for information concerning both funding and non-monetary support for the research reported in the work (typically an article). This includes both monetary awards, grants, investigators, etc. and also facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
• <funding-group> **Funding Group**, zero or more
• <contributed-resource-group> **Contributed Resource Group**, zero or more

9.4.261 <support-source> Support Source

Agency or organization (such as a foundation, corporation, or an educational institution) that provided non-monetary support (such as facilities or data) in support of the research on which a work was based.

Attributes:

@country **Country**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@support-type **Type of Support Provided**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**

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`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**

9.4.262 `<surname>` Surname

Surname of a person.

Attributes:

`@id` **Document Internal Identifier**
`@initials` **Initials for Personal Names**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.263 `<table>` Table (NISO JATS table model)

The rows and columns part of a full table. (This element is based on and intended to be converted easily to the XHTML `table` element.)

Attributes:

`@border` **Border (Frame) around a Table (NISO JATS table model)**
`@cellpadding` **Cell Padding (NISO JATS table model)**
`@cellspacing` **Cell Spacing (NISO JATS table model)**
`@content-type` **Type of Content**
`@frame` **Frame (NISO JATS table model)**

@id **Document Internal Identifier**
@rules **Rules (NISO JATS table model)**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@summary **Summary (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

The following, in order:
- Any one of:
  - <col> **Table Column (NISO JATS table model)**, zero or more
  - <colgroup> **Table Column Group (NISO JATS table model)**, zero or more
- Any one of:
  - The following, in order:
    - <thead> **Table Header (NISO JATS table model)**, zero or one
    - <tfoot> **Table Footer (NISO JATS table model)**, zero or one
    - <tbody> **Table Body (NISO JATS table model)**, one or more
  - <tr> **Table Row (NISO JATS table model)**, one or more

9.4.264 <table-count> Table Count

Number of <table-wrap> elements that appear in the document.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

9.4.265 <table-wrap> Table Wrapper

Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Any combination of:

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- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <alternatives> **Alternatives For Processing**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <code> **Code**
- <disp-formula> **Formula, Display**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <table> **Table (NISO JATS table model)**
- <xref> **X (cross) Reference**

- Any combination of:
  - <table-wrap-foot> **Table Wrapper Footer**
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.266 <table-wrap-foot> Table Wrapper Footer

Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <title> **Title**, zero or one
- One or more of any of:
  - <p> **Paragraph**
  - <fn-group> **Footnote Group**
  - <fn> **Footnote**
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.267 <table-wrap-group> Table Wrapper Group

Container element for tables (<table-wrap> elements) that are to be displayed together.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or more
- <abstract> **Abstract**, zero or more
- <kwd-group> **Keyword Group**, zero or more

- <subj-group> **Subject Group**, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- One or more of any of:
  - <table-wrap> **Table Wrapper**
  - <xref> **X (cross) Reference**

9.4.268 <target> Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@target-type **Type of Target**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.269 <tbody> Table Body (NISO JATS table model)

Container element that holds the rows and columns in one of the *body* (as opposed to the *header*) portions of a table.

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

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9.4.270 <td> Table Data Cell (NISO JATS table model)

One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML td element.)

Attributes:

@abbr **Abbreviation (NISO JATS table model)**
@align **Horizontal Alignment (NISO JATS table model)**
@axis **Axis (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@colspan **Column Span (NISO JATS table model)**
@content-type **Type of Content**
@headers **Headers (NISO JATS table model)**
@id **Document Internal Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <hr> **Horizontal Rule**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- <disp-quote> **Quote, Displayed**

- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <alternatives> **Alternatives For Processing**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <explanation> **Explanation**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.271 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@term-status **Term Status**
@term-type **Type of Term**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters

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- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

9.4.272 <term-head> Definition List: Term Head

Heading over the first column (the term column) of a definition list (two-part list).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.273 <tex-math> TeX Math Equation

Used to hold encoded math, expressed in TeX or LaTeX.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@notation **Notation**
@specific-use **Specific Use**
@version **Version of TeX or LaTeX**
@xml:base **Base**

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Content model:

Text, numbers, or special characters

9.4.274 <textual-form> Textual Form

Textual form provides a place to hold a textual equivalent or searchable textual version of a complex structure such as an equation or a graphical object. The complex object and the textual equivalent are associated with each other by putting them in the same alternatives wrapper.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.275 <tfoot> Table Footer (NISO JATS table model)

The footer rows and columns within a NISO JATS table. (This element is based on and intended to be converted easily to the XHTML tfoot element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

9.4.276 <th> Table Header Cell (NISO JATS table model)

One cell in the table header, as opposed to an ordinary cell in the body of a table. (This element is based on and intended to be converted easily to the XHTML th element.)

Attributes:

@abbr **Abbreviation (NISO JATS table model)**
@align **Horizontal Alignment (NISO JATS table model)**
@axis **Axis (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@colspan **Column Span (NISO JATS table model)**
@content-type **Type of Content**
@headers **Headers (NISO JATS table model)**
@id **Document Internal Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <hr> **Horizontal Rule**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- <disp-quote> **Quote, Displayed**

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- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <alternatives> **Alternatives For Processing**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <explanation> **Explanation**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.277 <thead> Table Header (NISO JATS table model)

Container element for the table header rows of a table. (This element is based on and intended to be converted easily to the XHTML thead element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

9.4.278 <time-stamp> Time Stamp for Cited Work

This element is deprecated. Avoid using it; use <date-in-citation>.

Attributes:

@content-type **Type of Content**

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

9.4.279 `<title>` Title

Heading or title for a structural element (for example, `<sec>`, `<app>`, `<boxed-text>`).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**

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    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <break> **Line Break**
  - Citation Elements
    - <citation-alternatives> **Citation Alternatives**
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**

9.4.280 <title-group> Title Group

Container element to hold the various titles for a document or a document component.

Attributes:

<id> **Document Internal Identifier**
<xml:base> **Base**

Content model:

The following, in order:
- <article-title> **Article Title**
- <subtitle> **Document Subtitle**, zero or more
- <trans-title-group> **Translated Title Group**, zero or more
- <alt-title> **Alternate Title**, zero or more
- <fn-group> **Footnote Group**, zero or one

9.4.281 <tr> Table Row (NISO JATS table model)

Container element for all the cells in a single table row. (This element is based on and intended to be converted easily to the XHTML tr element.)

Attributes:

<align> **Horizontal Alignment (NISO JATS table model)**
<char> **Table Cell Alignment Character (NISO JATS table model)**
<charoff> **Table Character Offset (NISO JATS table model)**
<content-type> **Type of Content**
<id> **Document Internal Identifier**
<style> **Style (NISO JATS table model; MathML Tag Set)**
<valign> **Vertical Alignment (NISO JATS table model)**
<xml:base> **Base**

Content model:

One or more of any of:
- <th> **Table Header Cell (NISO JATS table model)**
- <td> **Table Data Cell (NISO JATS table model)**

9.4.282 <trans-abstract> Translated Abstract

Abstract that has been translated into a language other than that in which the work was originally published.

Attributes:

<abstract-type> **Type of Abstract**
<id> **Document Internal Identifier**
<specific-use> **Specific Use**
<xml:base> **Base**
<xml:lang> **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one

- <p> **Paragraph**, zero or more
- <sec> **Section**, zero or more

9.4.283 <trans-source> Translated Source

Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.284 <trans-subtitle> Translated Subtitle

Document or document component subtitle that has been translated into a language other than that of the original document or document component subtitle.

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Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<break>` **Line Break**

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9.4.285 <trans-title> Translated Title

Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**

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    - <sup> **Superscript**
- <break> **Line Break**

9.4.286 <trans-title-group> Translated Title Group

Container element for translated and transliterated titles.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <trans-title> **Translated Title**
- <trans-subtitle> **Translated Subtitle**, zero or more

9.4.287 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@underline-style **Appearance of the Underline**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
    - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Elements

- ◦ <tex-math> **TeX Math Equation**
- ◦ <mml:math> **Math (MathML Tag Set)**

- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <milestone-end> **Milestone End**
  - ◦ <milestone-start> **Milestone Start**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

9.4.288 <uri> Uniform Resource Identifier (URI)

Identifies a Uniform Resource Identifier (such as a URL) that may be used as a live link, typically naming a website (such as: <uri>https://www.mulberrytech.com</uri>).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.289 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or one
- One or more of any of:

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- <verse-line> **Line of a Verse**
- <verse-group> **Verse Form for Poetry**

- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.290 <verse-line> Line of a Verse

One line of a poem or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@indent-level **Indentation Level**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

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9.4.291 <version> Version Statement

A full version statement, which may be only a number, for data or software that is cited or described.

Attributes:

@content-type **Type of Content**
@designator **Designator**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.292 <volume> Volume Number

Number of a journal (or other document) within a series.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.293 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

9.4.294 <volume-issue-group> Volume Issue Grouping

A grouping element to hold related volume and issue elements.

Attributes:

@content-type **Type of Content**

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`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<volume>` **Volume Number**, zero or more
- `<volume-id>` **Volume Identifier**, zero or more
- `<volume-series>` **Volume Series**, zero or one
- `<issue>` **Issue Number**, zero or more
- `<issue-id>` **Issue Identifier**, zero or more
- `<issue-title>` **Issue Title**, zero or more
- `<issue-title-group>` **Issue Title Group**, zero or more
- `<issue-sponsor>` **Issue Sponsor**, zero or more
- `<issue-part>` **Issue Part**, zero or one

9.4.295 `<volume-series>` Volume Series

Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.296 `<word-count>` Word Count

The approximate number of words that appear in a document or document component.

Attributes:

`@count` **Count**
`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

This is an EMPTY element

9.4.297 `<xref>` X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

`@alt` **Alternative Text**
`@custom-type` **Custom Attribute Value Escape Hatch**
`@id` **Document Internal Identifier**
`@ref-type` **Type of Cross-Reference**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**

- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <ruby> **Ruby Annotation Wrapper**

- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.298 <year> Year

Representation, usually numerical, of a calendar year.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.5 Attributes

Each attribute in this Tag Set is listed and identified, and specifics of the model of the attribute in this Tag Set are provided.

Each attribute is identified with a name, expanded information name, and definition, as it is listed in Section 7, *Tag Suite Components*. For some attributes a "Usage" section provides additional information on how the attribute is intended to be used or interpreted.

Following that appears the modeling information specific to this Tag Set. For attributes that are associated with only one element, or for which the usage is the same for all elements in the Tag Set, there appears:

- a list of all of the elements associated with the attribute;
- an optionality description:
  - "this attribute may be used if the element is used" means the attribute is optional;
  - "this attribute must be used if the element is used" means the attribute is required;
  - "this attribute must have the value …" means that the attribute has a fixed value.
- a table showing the allowed value(s) of the attribute and describing the meaning of each value. If there is a default value, that value appears in bold.

If there is more than one element associated with an attribute in the Tag Set and those elements use the attribute differently (for example, one element provides a default value for the attribute and on other elements there is no default value), the specifics are repeated for each group of elements that has the same usage and values for the attribute.

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9.5.1 `@abbr` Abbreviation (NISO JATS table model)

An abbreviated version of the cell's content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell's header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHTML `abbr` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A brief note of what is in the cell, mostly for use by accessibility software.

9.5.2 `@abbrev-type` Type of Journal Title Abbreviation

Identifier of the authority that defined the abbreviation (for example, "`nlm-ta`" for an NLM title abbreviation, "`publisher`" for a publisher-specific abbreviation).

In element `<abbrev-journal-title>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A name, acronym, or descriptive word naming the authority responsible for the abbreviation, for example, "`publisher`", meaning that the publisher of the article assigned the abbreviation.

9.5.3 `@abstract-type` Type of Abstract

Type or style of abstract as identified by the publisher (for example, "`short`", "`graphic`", "`ASCII`", "`stereochemical`").

In elements `<abstract>` and `<trans-abstract>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Brief name for the type of abstract, such as "`short`".

9.5.4 `@align` Horizontal Alignment (NISO JATS table model)

Sets the horizontal (line) alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `align` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
center	Center align the cell contents.
char	Align the text on the character identified with the `@char` attribute.
justify	Fully justify cell contents (right and left justification).
left	Left justify cell contents.
right	Right justify cell contents.

9.5.5 `@alt` Alternative Text

Word or phrase that serves as a textual alternative for the element.

In elements `<abbrev>`, `<label>`, `<named-content>`, `<styled-content>`, and `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Simple words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

9.5.6 `@alt-title-type` Type of Alternate Title

Reason for or purpose of an alternate title (for example, "`toc`" for a title used in a Table of Contents, "`rt-running`" for a right-running-head title for print).

In element `<alt-title>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase describing the rationale for this version of the title, for example, "`right-running-head`".

9.5.7 `@arrange` Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts and superscripts applying to the same character should stack (be placed one above the other as compactly as possible) or stagger (be stretched out in a line).

In elements `<sub>` and `<sup>`, this attribute *may* be used if the element is used.

Value	Meaning
stack	The multiple subscripts and superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts and superscripts should be stretched out in a line.

9.5.8 `@article-type` Type of Article

Type or kind of article (for example, "`research`", "`commentary`", "`review`", "`case`", or "`calendar`").

In elements `<article>` and `<sub-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of article, for example, "`research-article`".

9.5.9 `@article-version-type` Type of the Article Version Statement

This `@article-version-type` identifies the type of information contained in the `<article-version>` element.

In element `<article-version>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of version number or version status identifier that identifies this version of the article.

9.5.10 `@assigning-authority` Authority Responsible for an Identifier

Names the authority that assigned or administers an identifier used in this document, for example, Crossref, GenBank, or PDB.

In elements `<article-id>`, `<article-version>`, `<award-id>`, `<compound-kwd>`, `<compound-subject>`, `<contrib-id>`, `<custom-meta>`, `<ext-link>`, `<extended-by>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issn-l>`, `<issue-id>`, `<journal-id>`, `<kwd>`, `<kwd-group>`,

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<nested-kwd>, <object-id>, <pub-date>, <pub-id>, <resource-id>, <restricted-by>, <role>, <self-uri>, <subj-group>, <subject>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name of the organization assigning the identifier, such as "ORCID" or "ISNI"

9.5.11 @audience Audience for the Question

Names the perspective audience for the question(s).

In elements <question-wrap> and <question-wrap-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Short description of the intended audience, for example, "patients", "dermatology-students".

9.5.12 @authenticated Authenticated

The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.

In element <contrib-id>, this attribute will be assigned the value false by default.

Value	Meaning
true	This contributor identifier has been marked by the issuing authority as authenticated.
false	No guarantee has been made about this contributor identifier.

9.5.13 @award-id-type Type of Identifier for an Award

Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

In element <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

9.5.14 @award-type Type of Award

Type or kind of award (for example, "grant" or "contract").

In elements <award-group> and <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of award, such as "contract" or "grant".

9.5.15 @axis Axis (NISO JATS table model)

A method of categorizing table cells. The value of this attribute should be one or more category names. (This attribute is based on and intended to be converted easily to the XHTML axis attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the conceptual axis or a comma-separated list of axis names.

9.5.16 `@base-tagset` Base Tag Set Name

Which of the JATS standard tag sets is the basis for this document?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
archiving	Journal Archiving and Interchange Tag Set (Green)
authoring	Article Authoring Tag Set (Pumpkin)
publishing	Journal Publishing Tag Set (Blue)

9.5.17 `@baseline-shift` Baseline Shift

The position of an inline graphic with respect to the current text baseline (above, on, or below the baseline).

In element `<inline-graphic>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the position of the inline graphic.

9.5.18 `@border` Border (Frame) around a Table (NISO JATS table model)

Thickness, in pixels, of the border to draw around the table. A value of "`0`" indicates that the table has no border. (This attribute is based on and intended to be converted easily to the XHTML `border` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the border around the table.

9.5.19 `@calendar` Calendar

Name of the calendar used in naming a date such as a publication date, for example, "`Gregorian`", "`Japanese`" (Emperor years), or "`Thai Buddha`".

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, `<pub-date>`, `<string-date>`, and `<year>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name of the calendar used in the date, for example, "`Gregorian`".

9.5.20 `@cellpadding` Cell Padding (NISO JATS table model)

Amount of space, measured in pixels, between the border of a cell and the contents of a table cell. (This attribute is based on and intended to be converted easily to the XHTML `cellpadding` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the cell padding.

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9.5.21 `@cellspacing` Cell Spacing (NISO JATS table model)

Width of space between cells in a table. (This attribute is based on and intended to be converted easily to the XHTML `cellspacing` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the space between cells in a table.

9.5.22 `@char` Table Cell Alignment Character (NISO JATS table model)

The character to be used in horizontal alignment of the contents of an entry in a table. The content of a table data or table header element is to be aligned horizontally based on the character named in this attribute, for example, alignment on a period for decimal alignment or on an equal sign for alignment of variables. (This attribute is based on and intended to be converted easily to the XHTML `char` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	When used in conjunction with `align="char"`, the contents of the table entry are aligned relative to the character specified by this attribute.

9.5.23 `@charoff` Table Character Offset (NISO JATS table model)

Horizontal offset from the alignment character specified by the `@char` attribute; the percent of the current column width to the left of the (left edge of the) alignment character. (This attribute is based on and intended to be converted easily to the XHTML `charoff` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	Where to set the alignment. Although this Tag Set can enforce only that this attribute contain any characters, validation beyond the DTD (for example, schema validation or Schematron validation) can constrain this value to a counting number (positive integer).

9.5.24 `@code-type` Type of Code

The type of this code, used to categorize or describe the code.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.

9.5.25 `@code-version` Code Version

Version of this program or code fragment.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Version of the program (code) that is shown inside the `<code>` element, for example, “`25.1 second patch`”.

9.5.26 `@collab-type` Type of Collaboration

Type or role of the collaborators; what function they played in the publication (for example, "`translators`", "`editors`").

In element `<collab>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that describes the role that the collaborators played in the publication, for example, "`authors`".

9.5.27 `@colspan` Column Span (NISO JATS table model)

Table attribute used to request horizontal spanning of more than one column. (This attribute is based on and intended to be converted easily to the XHTML `colspan` attribute.)

In elements `<td>` and `<th>`, this attribute will be assigned the value `1` by default.

Value	Meaning
Counting number	How many column widths this cell will span, for example, "`3`".

9.5.28 `@content-type` Type of Content

Subject or type of content that makes this element semantically distinct.

In element `<contrib-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the shared role for the contributors within the `<contrib-group>` element (in the same way that the attribute `@contrib-type` does for a single contributor>).

In element `<role>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes a distinct semantic role of the contributor (person or collaboration) in the research behind the article or in the article itself. If the contributor played more than one role in the creation of an article, the `<role>` element should be repeated with a different value for this attribute. **CRediT Best Practice:** Although the `@content-type` attribute is designed to accept any text as its value, best practice is to tag the NISO CRediT, Contributor Roles Taxonomy term when such use is possible. CRediT roles might include, for example, "`Conceptualization`" (ideas; formulation or evolution of overarching research goals and aims), "`Data curation`" (management activities to annotate [produce metadata], scrub data and maintain research data [including software code, where it is necessary for interpreting the data itself] for initial use and later reuse), or "`Writing – original draft`" (creation and/or presentation of the published work, specifically writing the initial draft). At user discretion, other values such as "`deep sea diver`" may also be used.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	May be used to name stages in the lifecycle of a related object such as a book, with values such as "`preprint`" and "`version-of-record`".

In element `<named-content>`, this attribute *must* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	Names/describes the semantic function for the particular <named-content> element. These elements mark up material that cannot otherwise be described semantically by the elements in this Suite. For example, a medical article might use a @content-type value "body-system" or "gene" while a management article might use a @content-type value "product-name" or "stock-code".

In elements <abbrev>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <annotation>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article-version>, <author-comment>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <city>, <col>, <colgroup>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib-id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <custom-meta-group>, <data-title>, <date-in-citation>, <day>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <elocation-id>, <email>, <era>, <explanation>, <fax>, <fig-group>, <fixed-case>, <fn-group>, <fpage>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <isbn>, <issn>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <license-p>, <long-desc>, <lpage>, <media>, <milestone-end>, <milestone-start>, <month>, <name>, <nested-kwd>, <note>, <object-id>, <option>, <p>, <page-range>, <patent>, <phone>, <postal-code>, <prefix>, <price>, <publisher>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <resource-id>, <resource-name>, <rt>, <ruby>, <season>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-date>, <string-name>, <subject>, <subtitle>, <suffix>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <tex-math>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <tr>, <trans-source>, <trans-title>, <trans-title-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes any distinct semantics of the associated element. This may be used to preserve the semantic intent of prior tagging, for example, to record that a table cell was a total or subtotal amount. This may also be used to attach information classes to an element for retrieval purposes.

9.5.29 `@continued-from` Continued From

ID of a list which the current list continues; used to connect discontiguous lists that form one logical list.

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

9.5.30 `@contrib-id-type` Contributor Identifier Type

Names the type of contributor identifier, such as an ORCID or a ScopusID.

In element <contrib-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of contributor identifier or the authority (such as a publisher or industry organization) that is responsible for the creation of the contributor identifier, for example, "ORCID" or "JST".

9.5.31 @contrib-type Type of Contribution

Type of contribution made by the individual (for example, "author", "editor", "translator", "research-assistant").

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase naming or describing the contribution, such as "author".

9.5.32 @correct Correct Option Flag

Marks a multiple-choice option as correct or incorrect.

In element <option>, this attribute *may* be used if the element is used.

Value	Meaning
no	This answer is incorrect.
yes	This answer is correct.

9.5.33 @corresp Corresponding Author

Indicates whether or not the contributor is the corresponding contributor for the content.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	This author (or other contributor) is not a corresponding author.
yes	This author (or other contributor) is a corresponding author.

9.5.34 @count Count

Number of specific objects that appear in the document.

In elements <count>, <equation-count>, <fig-count>, <page-count>, <ref-count>, <table-count>, and <word-count>, this attribute *must* be used if the element is used.

Value	Meaning
Counting number	The number of objects being counted, for example, "5" for five tables or five figures.

9.5.35 @count-type Count Type

Names what is being counted by the <count> element, for example, images, contributors, algorithms, etc.

In element <count>, this attribute *must* be used if the element is used.

Value	Meaning
The name of an object, element, structure	The object being counted, for example, "contributors" when counting the number of authors or "images" for the number of images.

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9.5.36 `@country` Country

An abbreviation or code that names a country. This is information that can be used to identify a country that granted a patent or to provide a machine-comparable form of the name of a country as an addition to the content of the `<country>` element.

In elements `<country>`, `<funding-source>`, `<patent>`, and `<support-source>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a country, typically using the ISO 3166-1 two-letter alphabetic codes, for example, "`US`" for the United States of America.

9.5.37 `@currency` Currency

Type of currency in which the price is presented.

In element `<price>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a currency, typically using the ISO 4217 three-letter alphabetic codes, for example, "`USD`" for the United States Dollar.

9.5.38 `@custom-type` Custom Attribute Value Escape Hatch

Used in the same attribute list as an attribute with a set list of values, to provide a way for the content creator to say "my attribute value is not on the set list".

In elements `<article-id>`, `<fn>`, `<person-group>`, `<pub-id>`, and `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The value of the type attribute for this element, when that value is not found in a set list of values.

9.5.39 `@date-type` Type of Date

Event in the lifecycle of an object that this date is marking (for example, for an article, dates such as the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In elements `<date>` and `<pub-date>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a word or phrase that names or describes the purpose of a date, for example, "`received`" for the date a manuscript was received or "`corrected`" for the date a document was corrected.

9.5.40 `@deceased` Deceased

Indicates whether or not the contributor described in the element was deceased when the document or document component was published.

In element `<contrib>`, this attribute *may* be used if the element is used.

Value	Meaning
no	The contributor was living when the document was published.
yes	The contributor had died by the time the document was published.

9.5.41 `@degree-contribution` Degree of Contribution

Indicates the level of contribution for this contributor, such as "`Lead`" or "`Supporting`".

In element `<role>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The degree of contribution, for example, "`Lead`" or "`Equal`".

9.5.42 `@description` Description of a Private Character

Human-readable description of a defined private character (for example, "`Arrow, normal weight, single line, two-headed, Northwest to Southeast`").

In element `<private-char>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A rough visual description of the appearance of the `<private-char>` character, for example, "`Greek capital letter omega with tonos`".

9.5.43 `@designator` Designator

Used on such elements as edition number (`<edition>`) and version (`<version>`) to hold an unadorned numeric or alphabetic value of the edition or version number for machine search, when the number is a phrase or textual value.

In elements `<article-version>`, `<edition>`, `<extended-by>`, `<restricted-by>`, and `<version>`, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character(s) that indicates the version number, edition number, etc.	The unadorned number that indicates the simple, machine-processable value of the element's content. Typically this is a number such as "`4`" or an alphabetic character such as "`A`", while the element content may contain ordinals or other text.

9.5.44 `@document-id` Document Component Identifier

Identifier of a major document component within a publication that is (or contains) the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier for the document that contains the related object (`<related-object>`).

9.5.45 `@document-id-type` Document Identifier Type

Type of document identifier (for example, a DOI or a publisher's identifier) named in the `@document-id` attribute of the `<related-object>` element to identify a document, for example, "`doi`".

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
The type of document identifier of the related object, for example, a DOI (doi).	Names/describes the type of document identifier for the `@document-id` attribute named in a `<related-object>` element. This attribute qualifies the `@document-id` attribute.

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9.5.46 `@document-type` Document Type

The "document" is the part of the source that is typically delivered when a user follows the link to a `<related-object>`. This attribute names/describes what that document is.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of document being returned by the **Related Object Information** element, for example, a chapter, appendix, or reference list.

9.5.47 `@dtd-version` Version of the Tag Set (DTD)

Version of the Tag Set to which this document claims to be valid.

In element `<article>`, this attribute *may* be used if the element is used.

Value	Meaning
1.3	Version 1.3 of JATS, an ANSI/NISO standard
1.3d2	Version 1.3d2 (Version 1.2 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.3d1	Version 1.3d1 (Version 1.2 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.2	Version 1.2 of JATS, an ANSI/NISO standard
1.2d2	Version 1.2d2 (Version 1.1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.2d1	Version 1.2d1 (Version 1.1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.1	Version 1.1 of JATS, an ANSI/NISO standard
1.1d3	Version 1.1d3 (Version 1 Committee Draft 3 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d2	Version 1.1d2 (Version 1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d1	Version 1.1d1 (Version 1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.0	Version 1.0 of JATS, the first ANSI/NISO standard
0.4	Version 0.4 of JATS, the first version made publicly available. JATS was not yet an ANSI/NISO standard
3.0	NLM DTD 3.0 (last NLM DTD version before JATS)

9.5.48 `@elocation-id` Elocation Identifier

Bibliographic identifier for a related article that does not have traditional printed page numbers.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The value of the elocation identifier.

9.5.49 `@end_date` End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In element <ali:free_to_read>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.

9.5.50 @equal-contrib Equal Contribution

Indicates whether or not all contributors contributed equally.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	This contributor did not participate equally with all other contributors.
yes	This contributor participated equally with all other contributors.

9.5.51 @event-type Type of Event

Type or kind of event in the publication history of a document, for example, a reprint of a book or the publication of a revised online edition.

In element <event>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of event, for example, "reprint", "revision", "edition3".

9.5.52 @executable Executable

Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
no	The code cannot or should not be executed.
yes	The code is intended to be run.

9.5.53 @ext-link-type Type of External Link

Type of external link; may include a specific source (for example, "pdb", "pir"), identifier type (for example, "doi", "aoi"), or access method (for example, "ftp", "uri").

In elements <ext-link>, <related-article>, and <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of link, for example, "doi", "aoi" or "ftp".

9.5.54 @fig-type Type of Figure

Type or format of the figure (for example, "cartoon", "chart", "diagram", "map", "plate", "workflow").

In element <fig>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The type of object shown in the figure, for example, "diagram", "chart", or "map".

9.5.55 @fn-type Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

In element <fn>, this attribute *may* be used if the element is used.

Value	Meaning
abbr	Abbreviations.
com	Communicated-by information.
con	Contributed-by information.
coi-statement	Term for Conflict of Interest statements.
conflict	Older term for Conflict of Interest statements. "coi-statement" is now a JATS4R recommendation.
corresp	Corresponding author information not identified separately, but merely footnoted.
current-aff	Contributor's current affiliation.
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute @custom-type.
deceased	Person has died since article was written.
edited-by	Contributor has the role of an editor.
equal	Contributed equally to the creation of the document.
financial-disclosure	Statement of funding or denial of funds received in support of the research on which an article is based.
on-leave	Contributor is on sabbatical or other leave of absence.
other	Some footnote type, other than those enumerated. To name the type, use the value "custom" and then the attribute @custom-type rather than this value "other".
participating-researchers	Contributor was a researcher for an article.
present-address	Contributor's current address.
presented-at	Conference, colloquium, or other occasion at which this paper was presented.
presented-by	Contributor who presented the material.
previously-at	Contributor's previous location or affiliation.
study-group-members	Contributor was a member of the study group for the research.
supplementary-material	Points to or describes supplementary material for the article.
supported-by	Research upon which an article is based was supported by some entity.

9.5.56 @fontchar Font Character Table Offset

Offset of the character into a glyph table, such as a Unicode character.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The offset of the character into a glyph table.

9.5.57 `@fontname` Font Name

Name of the font.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A name for the font.

9.5.58 `@format` Format

Name of the image format for the bitmap that is provided with a <glyph-data> element. (The <glyph-data> element is used to define a private use character when the <private-char> contains a bitmap.)

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A word	A word naming the format of the bitmap. The word may not contain any spaces, and the characters of the word are limited to letters, numbers, and these special characters: period, hyphen, underscore, and colon.

9.5.59 `@frame` Frame (NISO JATS table model)

Specifies which sides of the table should be given rules, making a box or frame of lines around the table. (This attribute is based on and intended to be converted easily to the XHTML `frame` attribute.)

In element <table>, this attribute *may* be used if the element is used.

Value	Meaning
above	Rule above only (top).
below	Rule below only (bottom).
border	Rules on all table rows and columns.
box	Rules on all 4 sides.
hsides	Rules on horizontal sides only (topbot).
lhs	Left-side rule only.
rhs	Right-side rule only.
void	No border (none).
vsides	Rules on vertical sides only (sides).

9.5.60 `@glyph-data` Glyph Data Character Being Referenced

An `IDREF`-type attribute that points to the `@id` attribute of the <glyph-data> character inside a <private-char> element. The idea is to use the full <glyph-data> with its name and bitmap once, then point to an existing character instead of defining the entire <glyph-data> element repeatedly.

In element <glyph-ref>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	The pointing uses the `ID/IDREF` mechanism, using the `@glyph-data` attribute of the <glyph-ref> element to point to the `@id` attribute of an existing <glyph-data> element.

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9.5.61 `@headers` Headers (NISO JATS table model)

List of `@id`s of the table header (`<th>`) or the table data (`<td>`) cells that provide header information for this cell. (This attribute is based on and intended to be converted easily to the XHTML `headers` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Contains a list of one or more `ID`s of the table header (`<th>`) or table data (`<td>`) cells that are acting as the header for the current cell.

9.5.62 `@hreflang` Language of the Link Target

Language of the target to which a link is pointing. A processor following the link would expect to find a document in the language named.

In elements `<abbrev>`, `<article-version>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<extended-by>`, `<funding-source>`, `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<resource-name>`, `<restricted-by>`, `<self-uri>`, `<supplementary-material>`, `<support-source>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "`en`" for English or "`de`" for German) or for a language and a script ("`ja-Kana`").

9.5.63 `@id` Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In element `<target>`, this attribute *must* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid `ID`.

In elements `<abbrev>`, `<abbrev-journal-title>`, `<abstract>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<aff-alternatives>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<alt-title>`, `<alternatives>`, `<annotation>`, `<anonymous>`, `<answer>`, `<answer-set>`, `<app>`, `<app-group>`, `<array>`, `<article>`, `<article-categories>`, `<article-id>`, `<article-meta>`, `<article-title>`, `<article-version>`, `<article-version-alternatives>`, `<attrib>`, `<author-comment>`, `<author-notes>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<back>`, `<bio>`, `<block-alternatives>`, `<body>`, `<bold>`, `<boxed-text>`, `<break>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<citation-alternatives>`, `<city>`, `<code>`, `<col>`, `<colgroup>`, `<collab>`, `<collab-alternatives>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<compound-subject>`, `<compound-subject-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib>`, `<contrib-group>`, `<contrib-id>`, `<contributed-resource-group>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`,

<corresp>, <count>, <country>, <counts>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <equation-count>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <extended-by>, <fax>, <fig>, <fig-count>, <fig-group>, <fixed-case>, <floats-group>, <fn>, <fn-group>, <fpage>, <front>, <front-stub>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <history>, <hr>, <index-term>, <index-term-range-end>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-meta>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <processing-meta>, <product>, <pub-date>, <pub-date-not-available>, <pub-history>, <pub-id>, <publisher>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-count>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <resource-wrap>, <response>, <restricted-by>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <surname>, <table>, <table-count>, <table-wrap>, <table-wrap-foot>, <table-wrap-group>, <tbody>, <td>, <term>, <term-head>, <tex-math>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <word-count>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.

9.5.64 `@indent-level` Indentation Level

This numeric attribute indicates the level of indentation of a line of verse (<verse-line>), relative to the entire verse or stanza (<verse-group>) in which the line is found.

In element <verse-line>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	Typically a counting number that indicates the relative positioning of this verse line within its verse group, for example, "1" for level 1 indentation, "2" for level 2 indentation, etc. Note that the units in which indents are measured are left to the application.

9.5.65 `@index-type` Type of Index

Names the specific indexes in which an index term (<index-term>) should be used, for example, "author", "subject", "chemical".

In element <index-term>, this attribute *may* be used if the element is used.

Value	Meaning
One or more words	A word naming the index, or a series of words each representing a specific index.

9.5.66 `@initials` Initials for Personal Names

Initial(s) for the surname or the given names of a person.

In elements <given-names> and <surname>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The initial letters of a person's names.

9.5.67 `@institution-id-type` Type of Institution Identifier

Type of or name for an institution identifier, such as an ISNI or a RIN (Ringgold).

In element <institution-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of the institution identifier, such as ISNI, Ringgold, or DOI.

9.5.68 `@iso-8601-date` ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date value ("YYYY-MM-DDThh:mm:ss") for a JATS date-specific element, whether the content of the date be specified as text, an ISO date, a partial date, or as any other date format. If the date *given in the content of the element* is in a non-Gregorian calendar, this attribute can hold the Gregorian calendar equivalent of that date.

In elements <access-date>, <article-version>, <conf-date>, <date>, <date-in-citation>, <pub-date>, <string-date>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 standard date format ("YYYY-MM-DDThh:mm:ss") for the date given in the element, for example, "2015-07-15".

9.5.69 `@issue` Issue Number of a Related Article

Issue number of a journal which contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The number of the journal issue, such as "48".

9.5.70 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A journal abbreviation or other journal identifier.

9.5.71 @journal-id-type Type of Journal Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In elements <journal-id> and <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that names the type of identifier (for example, "doi") or that identifies the type of organization or service which assigned the identifier (for example, "index" to indicate an abstracting or indexing service).

9.5.72 @kwd-group-type Type or Kind of Keywords in the Group

The class or type of keyword, for example, "abbreviations" (for keywords that contain an abbreviation and its expansion) or "author-provided".

In element <kwd-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	This attribute is used in two different senses: 1) The primary usage describes the class or type of keyword, for example, "abbreviations" for keywords that contain an abbreviation and its expansion, "hierarchical" for keywords that are grouped into a hierarchy, or "code" for keywords that contain a code and its text. 2) The attribute can also name the source that established a particular group of keywords, when the source is not an institutional assigning authority, for example, "author-provided", "publisher", and "editorial".

9.5.73 @language Code Language

Programming or scripting language in which this code is written, e.g. "javascript", for code written in "JavaScript 3.0". (The "3.0" is recorded in the @language-version attribute.)

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The lower case name of the programming or scripting language.

9.5.74 @language-version Code Language Version

Version of the language in which this code is written, e.g. "3.0", for code written in "JavaScript 3.0". (The language name "javascript" is recorded in the @language attribute.)

In element <code>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The version of the language in the code sample, such as "3.0", "8A", etc.

9.5.75 @license-type Type of License

Type of license described by the element.

In element <license>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of license, for example, "open-access" for a license permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited; or "ccc" for a Copyright Clearance Center statement.

9.5.76 @link-type Type of Link (for a Related Object)

How a <related-object> element is related to the current document (for example, to indicate a Table of Contents relationship).

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of relationship between the related object and the current document.

9.5.77 @list-content List Content

Type of list, usually with a semantically meaningful name (for example, a "where-list" for the list of the variables that follows an equation, a "notation-list", or a "procedure-list" for a list of procedural steps to follow).

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of list for named list types, for example, a "where-list" for a list of the variables that frequently follows an equation, a "notation" list, or a "procedure-list" or "step-list" for a list of procedural steps to follow.

9.5.78 @list-type Type of List

Specifies what prefix character should precede each list item. For example, the style may suggest the character type ("simple" or "ordered"), or the style may name the character explicitly ("alpha-lower" for a list numbered "a.", "b.", "c.").

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word that either (1) specifies the character to be used for the list-item prefix (for example, the word "bullet" for a list with bulleted items) or (2) describes the appearance or format of the list items (for example, the word "simple" for a list that has no prefix character before each list item or the word "ordered" for a numbered list whose prefix style is set at display time).

9.5.79 `@math-representation` Math Representation in This Document

A list of the (possibly many) ways that mathematical expressions may be represented in this document, for example, both MathML and TeX ("`mathml tex`") or both MathML, SVG graphics, and narrative text ("`mathml images plain-text`").

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
A space-separated list of words that name math representation types	The math representations that may be used in the document, for example, "`mathml`", "`latex`", "`tex`", "`images`", and "`plain-text`"

9.5.80 `@mathml-version` MathML Version

Which version of MathML is used by the tag set for this document?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
2.0	MathML 2.0 is used
3.0	MathML 3.0 is used

9.5.81 `@mime-subtype` Mime Subtype

Mime subtype for a graphic, multimedia object, or piece of supplementary material.

In elements `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific mime subtype (IANA).

9.5.82 `@mimetype` Mime Type

Mime type for a graphic, multimedia object, or piece of supplementary material.

In elements `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The appropriate mime type for the object.

9.5.83 `@name` Name (Private Character)

This attribute is used with `<private-char>`, to contain the unique name for the private character being defined.

In element `<private-char>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with `<private-char>`, supplies the name of the character being defined. By convention, this character should be named in a fashion similar to names found in the Unicode Standard (for example, in all uppercase ASCII, "`NORTHWEST SOUTHEAST ARROW`").

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9.5.84 `@name-style` Name Style

Style of processing requested for a structured personal name.

In elements `<name>` and `<string-name>`, this attribute will be assigned the value `western` by default.

Value	Meaning
eastern	The name will **both** be displayed and sorted/inverted with the family name preceding the given name.
given-only	The single name provided is a given name, not a family name/surname. The single name will be both the sort and the display name.
islensk	The name will **both** be displayed and sorted/inverted with the given name preceding the family name.
western	The name will be displayed with the given name preceding the family name, **but** will be sorted/inverted with the family name preceding the given name.

9.5.85 `@notation` Notation

Indicates that the content of the associated element will be coded in one of the named notations.

In element `<tex-math>`, this attribute *may* be used if the element is used.

Value	Meaning
LaTeX	The content of the associated element will be in LaTeX.
TEX	The content of the associated element will be in TeX.
TeX	The content of the associated element will be in TeX.
tex	The content of the associated element will be in TeX.

9.5.86 `@notes-type` Type of Notes

Type of note contained in the element (for example, "`note-in-proof`").

In element `<notes>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The note type, if known, for example, "`note-in-proof`".

9.5.87 `@object-id` Object Identifier

Identifier of an object (for example, a table, figure, or sidebar) within a separate document that is the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the text or graphic object for a `<related-object>` element.

9.5.88 `@object-id-type` Object Identifier Type

Type of object identifier (for example, an XML `ID`, a string, the label of the object, a DOI) for a `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of the identifier, for example, "ID" for an XML attribute of type ID.

9.5.89 @object-type Object Type

Type of object (for example, "table", "figure", "sidebar") that is the target of the <related-object> element.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of related object, such as "table".

9.5.90 @orientation Orientation

Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical ("portrait") or in a wide manner with the long edge horizontal ("landscape").

In elements <array>, <boxed-text>, <chem-struct-wrap>, <code>, <fig>, <fig-group>, <graphic>, <media>, <preformat>, <supplementary-material>, <table-wrap>, and <table-wrap-group>, this attribute will be assigned the value portrait by default.

Value	Meaning
landscape	Indicates that the object should be rotated by 90 degrees.
portrait	Indicates that the object should not be rotated by 90 degrees.

9.5.91 @page Page of Related Article

Page number of a related journal article, which may be either the number of the journal page on which the article starts or a page range.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The page number on which a related article starts or the range of pages for a related article. For example, the value may be a page number such as "1145", a page range such as "35-58", or a letter/number combination, such as "46a" or "iii".

9.5.92 @person-group-type Type of People in the Person Group

Role of the person(s) being named in the <person-group> element (for example, author, editor, curator).

In element <person-group>, this attribute *may* be used if the element is used.

Value	Meaning
allauthors	Used to identify a complete list of authors when a subset of the author group is used elsewhere in the citation. This may occur, for example, when a citation identifies both a book and a chapter within the book.
assignee	Persons to whom a patent is awarded.
author	Content creators.
compiler	Persons who put together a composite work from multiple sources.
curator	Person or group responsible for data curation or archival curation

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Value	Meaning
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute `@custom-type`
director	Directors.
editor	Content editors.
guest-editor	Content editors who have been invited to edit all or part of a work.
illustrator	Creator of the pictures, drawings, or other illustrations (includes photographer)
inventor	Idea, software, or machine creators.
research-assistant	Assisted with the scientific research that is the basis for a work
transed	Editors of a translated version of a work.
translator	Persons who translated the work from one language into another.

9.5.93 `@platforms` Platforms

Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word "name", and multiple platform names will be separated by spaces.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Platform on which the `<code>` is intended to run, for example, "`Mac-OSX`".

9.5.94 `@pointer-to-explained` Pointer to Object Described in Explanation

Used in an `<explanation>` to point to the `<question>`, `<answer>`, or `<option>` that is being explained.

In element `<explanation>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of the object or objects being explained.

9.5.95 `@pointer-to-question` Pointer to Question

Used in an `<answer>` to point to the `<question>`(s) for which it supplies correct answer(s).

In element `<answer>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of one or more `<question>` elements. Typically an answer points to a single question.

9.5.96 `@position` Position

Typically indicates whether a display object (for example, figure, table, boxed text) must be anchored in its exact location within the text or may float to a different location in the document (for example, to the top of the next page, into the next column, within a separate window). Also used to indicate that the display object should be placed in the margin or used as a background image behind the text.

In elements `<boxed-text>`, `<chem-struct-wrap>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `float` by default.

Value	Meaning
anchor	The object must remain in its exact location in the text flow.
background	The object (typically an image) is used as background displayed visually "behind" the narrative text.
float	The object is not anchored and may be moved to a new column, a new window, a new page, the end of the document, etc.
margin	In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.

9.5.97 `@prefix-word` Prefix Word (For a List Item)

Word or phrase to be added to the beginning of each item in a list (for example, "`Step`", "`Procedure`").

In elements `<def-list>` and `<list>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The prefix word to be used for the list; for example, the word "`Step`" might be used to display a list numbered "`Step1.`", "`Step2.`", "`Step3.`", etc.

9.5.98 `@preformat-type` Type of Preformatted Text

Type of content contained in the `<preformat>` element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

In element `<preformat>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase that describes the content or names the type of content for the `<preformat>` element, for example, "`poetry`" for a formatted poem laid out as a tree or "`man-machine`" for a man-machine dialog.

9.5.99 `@product-type` Type of Product

Category of product described in the element (for example, "`book`", "`software`", "`article`", "`issue`", "`website`", "`film`", "`hardware`").

In element `<product>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of product being reviewed, for example, "`website`" or "`videogame`".

9.5.100 `@pub-id-type` Type of Publication Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In elements `<article-id>` and `<pub-id>`, this attribute *may* be used if the element is used.

Value	Meaning
accession	Generic identifier type for a unique identifier given to an item in a data repository. For example, a DNA or protein sequence record for tracking the sequence record and the associated sequence over time.
archive	Generic identifier type for an identifier assigned by an archive or other repository (generally used with elements `<object-id>`, `<issue-id>`, and `<volume-id>`).
ark	Archival Resource Key — a Uniform Resource Locator (URL) containing the word "`ark`" that is a multi-purpose identifier for information objects of any type.

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Value	Meaning
art-access-id	Identifier type for a generic article accession identifier used for interchange and retrieval between archives.
arxiv	arXiv (archive of electronic preprints) identifier.
coden	Obsolete PDB/CCDC identifier (may be present on older articles).
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute `@custom-type`
doaj	Identifier of the Directory of Open Access Journals.
doi	Digital Object Identifier.
handle	Handle identifier, part of the Handle System for assigning, managing, and resolving persistent identifiers for digital objects and other resources on the Internet.
index	Generic identifier type for an identifier assigned by an abstracting or indexing service (generally used with elements `<object-id>`, `<issue-id>`, and `<volume-id>`).
isbn	International Standard Book Number.
manuscript	Generic identifier type for an identifier assigned to a manuscript.
medline	NLM Medline identifier.
mr	Mathematical Reviews (MR) identifier
other	None of the named identifiers in this list. To name the identifier type, use the value "`custom`" and then the attribute `@custom-type` rather than this value "`other`".
pii	The original "Publisher Item Identifier" (PII) was a system to provide unique and concise identification for individual published documents with a highly specified string. The PII specification is no longer in common use (2010).
pmcid	PubMed Central identifier.
pmid	PubMed Identifier (PubMed ID). See https://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed.
publisher-id	Generic identifier type for a publisher's identifier, such as an "`article-id`", "`artnum`", "`identifier`", "`article-number`", "`pub-id`", etc.
sici	Serial Item and Contribution Identifier (An ANSI/NISO Z39.56 code to uniquely identify volumes, articles, or other parts of a periodical. A journal article may have more than one SICI, for example, one for a print version and another for an electronic version.)
std-designation	The official number of a standard, from a standards body such as ISO, NISO, IEEE, ASME, etc., for example, "`Z39.96-2019`".
zbl	Zentralblatt MATH (zbMATH) identifier.

In elements `<issue-id>`, `<object-id>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of identifier, either as a specific type (such as "`doi`" or "`std-designation`") or a generic identifier type (such as "`publisher-id`" or "`archive`").

9.5.101 `@publication-format` Format of Publication

Format or medium of the document (for example, "`print`"). This element is used in several senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date,
- to describe the format/medium for an ISSN or ISBN, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

In elements `<date>`, `<element-citation>`, `<isbn>`, `<issn>`, `<mixed-citation>`, `<nlm-citation>`, and `<pub-date>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The cited format, for example, "`print`".

9.5.102 `@publication-type` Type of Referenced Publication

Category of publication being cited (for example, "`journal`" (journal article), "`preprint`", "`book`", "`letter`", "`review`", "`patent`", "`report`", "`standard`", "`data`", "`working-paper`").

In elements `<element-citation>`, `<mixed-citation>`, and `<nlm-citation>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publication, for example, "`book`", "`journal`" (for a journal article), "`patent`", "`preprint`", or "`data`" (for a dataset, database, spreadsheet, etc.).

9.5.103 `@publisher-type` Type of Publisher

Type of publisher or publishing organization of a work being cited (for example, "`government`", "`standards-body`", "`university`", "`commercial`", "`foundation`", "`private`", "`corporate`").

In elements `<element-citation>`, `<mixed-citation>`, and `<nlm-citation>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publisher, for example, "`government`".

9.5.104 `@pub-type` Type of Publication

Deprecated: On the element `<pub-date>`, in the Archiving and Publishing Tag Sets, this `@pub-type` attribute is deprecated in favor of the `@publication-format` and `@date-type` attributes. In all Tag Sets, on the element `<issn>`, this `@pub-type` attribute is deprecated in favor of the `@publication-format` attribute (possibly with the `@content-type` attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

Definition: Deprecated precombination of the format/medium of a document with one or more events from its lifecycle, for example, "`epub`" for publication in an electronic format or "`ppub`" for publication in print.

In elements `<issn>` and `<pub-date>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of print or electronic publication, for example, "`epub`" for electronic publication.

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9.5.105 `@question-response-type` Type of Answer(s) to be Given to the Question

Used to mark a question as taking a particular type of answer or set of answers, for example, “multiple-choice” or “essay”.

In element `<question>`, this attribute *may* be used if the element is used.

Value	Meaning
essay	The answer to this question requires a longer written answer from the student.
fill-in-the-blank	The answer to this question is a medium-length written answer, typically a phrase or sentence.
multi-select	There are several option choices presented as responses to this question, and the student must select one or more.
multiple-choice	There are several option choices presented as responses to this question, and the student must select one.
short-answer	The answer to this question is a short-length written answer, typically a word or very short phrase or sentence.
true-false	For the answer to this question, the student must choose between “true” and “false”.

9.5.106 `@rationale` Rationale

Identifies why this milestone exists, what problem it is solving, and/or what object cannot be modeled using the regular hierarchy.

In elements `<milestone-end>` and `<milestone-start>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The reason for a milestone, or information about an object that cannot be modeled using the regular hierarchy.

9.5.107 `@ref-type` Type of Cross-Reference

Type of element that is the target of the cross-reference (for example: a Figure (“`fig`”), an Author Note (“`author-notes`”), or a Bibliographic Reference (“`bibr`”)). The values may be used, for example, for type-specific processing or validation.

In element `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
aff	Affiliation
app	Appendix
author-notes	Author notes
award	Points to the description of or identifier for a grant or award (`<award-id>`), also, possibly to an entire awards group (`<award-group>`)
bibr	Bibliographic reference (typically to a `<ref>` element, but it may point to a `<element-citation>` or `<mixed-citation>` if there are multiple citations inside the `<ref>` element)
bio	Biography (typically of a contributor)
boxed-text	Textbox or sidebar
chem	Chemical structure (to a `<chem-struct>` or `<chem-struct-wrap>` element)
collab	Collaboration

Value	Meaning
contrib	Contributor
corresp	Corresponding author
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute `@custom-type`
disp-formula	Display formula
fig	Figure or group of figures (to a `<fig>` or `<fig-group>` element)
fn	Footnote
kwd	Keyword
list	List or list item (to a `<list>` or `<list-item>` element; also, possibly to a `<def-list>` or `<def-item>` element)
other	None of the items listed. To name the type, use the value "`custom`" and then the attribute `@custom-type` rather than this value "`other`".
plate	Plate
scheme	Scheme
sec	Section
statement	Statement
supplementary-material	Supplementary information
table	Table or group of tables (to a `<table-wrap>` or `<table-wrap-group>` element)
table-fn	Table footnote

9.5.108 `@related-article-type` Type of Related Article

Type of article being described by the `<related-article>` element or type of relationship the article being described by the `<related-article>` has to the current article (for example, "`companion-article`" means the related article is a companion to the current article, "`corrected-article` means the related article corrects the current article", or "`preprint`" could be used to point from the version of record to an earlier related preprint).

In element `<related-article>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The article type for the related article, for example, "`addendum`".

9.5.109 `@resolution` Resolution of the Glyph Bitmap

Resolution of a bitmap in dots per inch, expressed as a decimal integer (for example, "`72`", "`300`").

In element `<glyph-data>`, this attribute *may* be used if the element is used.

Value	Meaning
Decimal integer	The number of dots per inch of the bitmap.

9.5.110 `@resource-id-type` Resource Identifier Type

Names the type or kind of identifier of a resource, where a resource is defined as some specific support for the work described in this article (for example, "`rrid`" for a Research Resource Identifier).

In element `<resource-id>`, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	Type of identifier of a resource, for example, "rrid" for a Research Resource Identifier.

9.5.111 @resource-type Resource Type

Names the type or kind of resource, where a resource is defined as some specific support for the work described in this article, for example, "research-materials".

In element <contributed-resource-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of resource (specific support for the work described), for example, "research-materials".

9.5.112 @response-type Type of Response

Type of response (<response>); parallels @article-type.

In element <response>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of response as described by the publisher, for example, "discussion".

9.5.113 @rid Reference to an Identifier

Value of the identifier of an associated element; used for linking related elements (for example, <term> to a <def>, <bio> to a <contrib>).

In elements <milestone-end> and <milestone-start>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

In element <index-term-range-end>, this attribute *must* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

In elements <aff>, <author-notes>, <award-group>, <award-id>, <bio>, <contrib>, <def>, <funding-source>, <funding-statement>, <named-content>, <see>, <see-also>, <sig>, <sig-block>, <support-description>, <support-source>, <term>, and <xref>, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to one or more existing identifiers.

9.5.114 @rowspan Row Span (NISO JATS table model)

Table attribute used to request vertical spanning by naming the number of rows a cell spans in a vertical span. (This attribute is based on and intended to be converted easily to the XHTML rowspan attribute.)

In elements <td> and <th>, this attribute will be assigned the value 1 by default.

Value	Meaning
A counting number	How many rows this cell will span vertically, for example, "3".

9.5.115 `@rules` Rules (NISO JATS table model)

Defines which rules to draw between the rows and columns of an XHTML 1.1 table. (This attribute is based on and intended to be converted easily to the XHTML `rules` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
all	Rules on all rows and columns.
cols	Rules between columns.
groups	Rules between groups.
none	No rules in table.
rows	Rules between rows.

9.5.116 `@scope` Scope (NISO JATS table model)

Specifies the cells for which the current `<td>` element or `<th>` element provides header information. Screen readers and other Assistive Technologies use `@scope` to provide information about the table structure that would be obvious to most sighted people. (This attribute is based on the XHTML `scope` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
col	Acts as a header for cells in the same column in following rows.
colgroup	Acts as a header for cells in the current colgroup that are down and to the right of the current cell (i.e., the remaining cells named in the `<colgroup>` element).
row	Acts as a header cell for cells in the same row in following columns.
rowgroup	Acts as a header cell for cells in the current row group (i.e., in the current `<thead>`, `<tfoot>`, or `<body>`) that are down and to the right of the current cell.

9.5.117 `@sec-type` Type of Section

Type of semantic content included in the section (for example, "`materials`", "`conclusions`").

In element `<sec>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the main semantic type of section content, such as "`conclusions`". This attribute is most useful when a list of values is maintained, and articles are tagged accordingly.

9.5.118 `@seq` Sequence

Sequence number of a document within the type of sequence named by the element to which this attribute is attached: on a `<volume>` element, the sequence within the volume; on an `<issue>` element, the sequence within the issue; on an `<fpage>` element, the sequence within a single page; and on an `<elocation-id>` element, the electronic sequence.

In elements `<elocation-id>`, `<fpage>`, `<issue>`, and `<volume>`, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The number of the document in a sequence of documents within a volume, issue, electronic compilation, or even on the same page. For example, for continuous-makeup journals that start more than one article on the same page, this attribute indicates a sequence number or letter for one of the articles, such as “a”, “b”, “c”; or “1”, “2”, “3”. For example, a value of “2” could mean “554-2”, page 554, second article.

9.5.119 `@source-id` Source Identifier

Identifier of a journal, book, conference proceedings, or other publication that is (or contains) the target of the <related-object>.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the source for the largest publishable unit (such as an entire book or conference proceedings) pointed to by the <related-object> element.

9.5.120 `@source-id-type` Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher’s identifier) for a <related-object>.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the type of document identifier named in the @source-id attribute for a <related-object> element. This attribute qualifies the @source-id attribute.

9.5.121 `@source-type` Source Type

This attribute can be used with two elements:

- to identify the kind of source providing an award that sponsored a work or the research on which a work was based (with the element <funding-source>), or
- to identify the type of publication, for example, a “book”, “journal”, or “database” that is (or contains) the target of the <related-object>.

In element <funding-source>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of entity (such as an organization or an individual) that is the source of an award which sponsors a work or the research underlying the work.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of object that is the source of the related object (<related-object>), for example, “book”.

9.5.122 `@span` Span (NISO JATS table model)

The number of columns that will share the <col> or <colgroup> element’s attributes. (This attribute is based on and intended to be converted easily to the XHTML span attribute.)

In elements <col> and <colgroup>, this attribute will be assigned the value 1 by default.

Value	Meaning
A counting number	How many columns will have the same attributes, for example, “3”.

9.5.123 `@specific-use` Specific Use

Specifies distinctions in the applicability of a particular element.

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-id>, <article-version>, <attrib>, <author-comment>, <author-notes>, <award-group>, <award-id>, <bio>, <body>, <bold>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <fax>, <fig>, <fig-group>, <fixed-case>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-subtitle>, <journal-title>, <kwd-group>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <named-content>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-date-not-available>, <pub-id>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <response>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <table>, <table-wrap>, <table-wrap-group>, <target>, <term>, <tex-math>, <textual-form>, <time-stamp>, <title>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific distinction in the applicability of a particular element, for example, "`print-only`".

9.5.124 `@start_date` Start Date

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

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In elements <ali:free_to_read> and <ali:license_ref>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document starts being free-to-read or begins the given license.

9.5.125 @style Style (NISO JATS table model; MathML Tag Set)

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), to record XHTML classes CSS style names/classes or similar styling information;
- with many of the elements within a NISO JATS table (<table>), to record the name of the XHTML 1.1 table styling to be applied to the element;
- To format verse, used with <verse-line> and <verse-group>.

In elements <caption>, <col>, <colgroup>, <table>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the markup style for one of the elements within a table or for the entire table.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the inline markup style for the element.

9.5.126 @style-detail Styling Detail

Provides additional information about a style (typically named by the @style attribute), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A value which indicates additional information about a style (@style), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.

9.5.127 @style-type Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name or description for the stylistic type, for example, "green background".

9.5.128 `@subj-group-type` Type of Subject Group

Subject, information class, or type of a particular `<subj-group>` element.

In element `<subj-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of subject.

9.5.129 `@summary` Summary (NISO JATS table model)

A summary of the contents or the semantics of the table, provided for speech-synthesis and non-visual browsers. (This attribute is based on and intended to be converted easily to the XHTML `summary` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Textual description of the contents of a table, intended to be read to the audience for the table.

9.5.130 `@supplement-type` Type of Supplement

Type of supplement or the reason for the supplement (for example, "`conference`" for a supplement containing information from a conference symposium).

In element `<supplement>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of or reason for the supplement, for example, "`conference`" or "`issue`".

9.5.131 `@support-type` Type of Support Provided

Names a type or kind of support for the research described in this article, for example, provision of facilities or materials.

In element `<support-source>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of support for the research described in this article, for example, provision of facilities or materials.

9.5.132 `@symbol` Symbol

Stores the symbol (for example, an asterisk, numeral, section mark) that was displayed in the original document to identify a specific footnote, if this symbol is to be preserved.

In elements `<collab>` and `<fn>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The symbol used to mark a footnote, such as a dagger "†".

9.5.133 `@table-model` Table Model Used

Which table model is used by the tag set for this document?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

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Value	Meaning
both	Both XHTML-inspired and OASIS CALS models are used
none	No table models are used
oasis	The OASIS XML Exchange (CALS) table model
xhtml	The XHTML-inspired table model

9.5.134 `@tagset-family` JATS Tag Set Family

Which of the JATS tag set families is the basis for this document's tag set?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
bits	BITS (Book Interchange Tag Suite)
jats	JATS (Journal Article Tag Suite)
sts	STS (Standards Tag Suite)

9.5.135 `@target-type` Type of Target

Kind of `<target>` that has been created (for example, describes the reason why some portion of text has been designated for cross-reference purposes).

In element `<target>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the rationale for designating a portion of text for cross-reference.

9.5.136 `@term-status` Term Status

The current status of a term (`<term>`) in the vocabulary from which it is taken, for example, "`preferred`".

In element `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The status word that describes the state of the term, for example, "`non-preferred`" (deprecated).

9.5.137 `@term-type` Type of Term

The type or kind of a term (`<term>`), for example, "`acronym`".

In element `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of term being used; for example, the term is an abbreviation or an equation.

9.5.138 `@toggle` Toggle Switch

Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element `<italic>`, this attribute will be assigned the value `yes` by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In element <roman>, this attribute will be assigned the value no by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In elements <bold>, <monospace>, <overline>, <sans-serif>, <sc>, <strike>, <styled-content>, and <underline>, this attribute *may* be used if the element is used.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

9.5.139 @underline-style Appearance of the Underline

Style of underline to be used (for example, "single", "double", "dashed").

In element <underline>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The style of underlining requested; for example, "double" would mean underlined by two rules, very close together.

9.5.140 @units Units

The units of measure in which the size or length of a cited work is expressed (for example, a @units value may record "pages", "minutes", "seconds", or "linear-feet").

In element <size>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the units of measure in which the size is expressed, for example, "MB".

9.5.141 @use-type Type of Use

If there is a specific use-case for this citation, this attribute describes it, for example, if this is a data citation, it may state that the data was "analyzed-data" for this article, rather than generated.

In elements <element-citation> and <mixed-citation>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	There are no set value list for this attribute, but the current use-case is for data citations, to express the difference between generated, analyzed, or referenced data.

9.5.142 `@valign` Vertical Alignment (NISO JATS table model)

Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `valign` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
baseline	All cells in the same row as a cell whose `@valign` attribute has this value should have their textual data positioned so that the first text line occurs on a baseline common to all cells in the row. This constraint does not apply to subsequent text lines in these cells.
bottom	Cell data is flush with the bottom of the cell.
middle	Cell data is centered vertically within the cell.
top	Cell data is flush with the top of the cell.

9.5.143 `@version` Version of TeX or LaTeX

Version of TeX or LaTeX used to produce the mathematics.

In element `<tex-math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Version of TeX or LaTeX used in the equation.

9.5.144 `@vocab` Vocabulary/Taxonomy Name

The name of a taxonomy, ontology, database, term list, thesaurus, index, controlled vocabulary (defined formally), generic vocabulary (subject area that is defined informally), etc. that is the source of terms such as keywords and subjects.

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<institution-id>`, `<kwd>`, `<kwd-group>`, `<named-content>`, `<nested-kwd>`, `<resource-id>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subj-group>`, `<subject>`, and `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name of the vocabulary, taxonomy, ontology, database, term list, index, etc. that is the source of the term named in the element's content.

9.5.145 `@vocab-identifier` Vocabulary/Taxonomy Identifier

Unique identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, for example, the controlled vocabulary for a group of terms such as a keywords or subjects. The content is typically (but is not limited to) a URI or DOI.

In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <institution-id>, <kwd>, <kwd-group>, <named-content>, <nested-kwd>, <resource-id>, <restricted-by>, <role>, <see-also>, <subj-group>, <subject>, and <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, typically (but not limited to) a URI or DOI.

9.5.146 @vocab-term Vocabulary/Taxonomy Term

The named vocabulary's canonical form of the term. (Note: The content of the element to which this attribute is attached is the display version of the term.)

In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <kwd>, <named-content>, <nested-kwd>, <restricted-by>, <role>, <see-also>, <subject>, and <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The canonical form of the term in the named vocabulary. This may or may not duplicate the content of the element.

9.5.147 @vocab-term-identifier Vocabulary/Taxonomy Term Identifier

A unique identifier within a specific vocabulary for the term to which this attribute is attached, such as (but not limited to) an item number, a URI, a DOI, etc.

In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <kwd>, <named-content>, <nested-kwd>, <restricted-by>, <role>, <see-also>, <subject>, and <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier of the term within a specific vocabulary, such as (but not limited to) an item number, a URI, DOI, etc.

9.5.148 @vol Volume of Related Article

Volume of the journal in which a related journal article exists.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The journal volume number for a related journal article, for example, "3" for the third volume, "125" for the one hundred and twenty-fifth, or "XV" for the fifteenth.

9.5.149 @width Width (NISO JATS table model)

This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements <col>, <colgroup>, and <table>, this attribute *may* be used if the element is used.

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Value	Meaning
Number	Within the NISO JATS Table model (<table>), the width of the table. By default, the NISO JATS table model (based on and designed to be converted easily to the XHTML 1.1 table model) should be used as defined in the XHTML 1.1 table model, to take advantage of existing software for table handling.

9.5.150 @xlink:actuate Actuating the Link

The intended behavior for a link when activated by an application, specifically, the timing for obtaining or retrieving the content of a link (for example, by a user clicking on the link to request the material, or by the material being automatically loaded with a document when the document or document component is loaded).

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
none	The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
onLoad	An application should retrieve the link at the same time a user obtains the initial document.
onRequest	An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.
other	The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.

9.5.151 @xlink:href Href (Linking Mechanism)

An address or identifier that permits an XLink application to find a remote resource, for example, a URI (such as a URL or filename) that links to an online site associated with the author or the online definition of a term.

In elements <graphic>, <inline-graphic>, <inline-media>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (a URL) to a resource.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (a URL) to a resource.

9.5.152 `@xlink:role` Role of the Link

A URI reference pointing to some resource that describes the role or function of a link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The URI of a resource that describes the role, reason, or rationale for the link.

9.5.153 `@xlink:show` Showing the Link

The intended presentation behavior for a link, specifically the manner in which the content of a link will be displayed, for example, as embedded material or in a separate window.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
embed	The link should be displayed as part of the initial document being viewed, i.e., the material will be “embedded” directly into the initial document.
new	The link should be displayed as a new, separate window, frame, pane, or other presentation context.
none	The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
other	The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
replace	The link should be displayed in the same window, frame, pane, or other presentation context as the initial document, thereby “replacing” the document or other object being linked.

9.5.154 `@xlink:title` Title of the Link

Describes the function of a link’s remote resource in human-readable fashion.

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In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive, human-readable title that acts as a brief description of the link.

9.5.155 `@xlink:type` Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word "simple", which means that the link is a simple, one-ended link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

9.5.156 `@xml:base` Base

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an `@xml:base` of "`https://jats.nlm.nih.gov/`", a URI inside the document of "`publishing/rationale.html`" would be processed as if it were "`https://jats.nlm.nih.gov/publishing/rationale.html`". Values of `@xml:base` are inherited, meaning that if there is an `@xml:base` on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <alternatives>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-categories>, <article-id>, <article-meta>, <article-title>, <article-version>, <article-version-alternatives>, <attrib>, <author-comment>, <author-notes>, <award-desc>, <award-group>, <award-id>, <award-name>, <back>, <bio>, <block-alternatives>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-

acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <count>, <country>, <counts>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <equation-count>, <era>, <etal>, <event>, <event-desc>, <explanation>, <ext-link>, <extended-by>, <fax>, <fig>, <fig-count>, <fig-group>, <fixed-case>, <floats-group>, <fn>, <fn-group>, <fpage>, <front>, <front-stub>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <history>, <hr>, <index-term>, <index-term-range-end>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-subtitle>, <issue-title>, <issue-title-group>, <italic>, <journal-id>, <journal-meta>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <processing-meta>, <product>, <pub-date>, <pub-date-not-available>, <pub-history>, <pub-id>, <publisher>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-count>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <resource-wrap>, <response>, <restricted-by>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <see>, <see-also>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <surname>, <table>, <table-count>, <table-wrap>, <table-wrap-foot>, <table-wrap-group>, <target>, <tbody>, <td>, <term>, <term-head>, <tex-math>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <word-count>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The base URI.

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9.5.157 `@xml:lang` Language

The language of the intellectual content of the element for which this is an attribute.

The value of this attribute must conform to IETF RFC 5646 (https://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "`fr`" (French), "`en`" (English), "`de`" (German), or "`zh`" (Chinese) is sufficient. These values are **NOT** case sensitive, but current best practice uses all lower case. In addition to the primary-language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: https://www.iana.org/assignments/language-subtag-registry

In element `<article>`, this attribute will be assigned the value `en` by default.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "`en`" for English or "`de`" for German) or for a language and a script ("`ja-Kana`").

In elements `<abbrev>`, `<abbrev-journal-title>`, `<abstract>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<alt-text>`, `<alt-title>`, `<annotation>`, `<anonymous>`, `<answer>`, `<answer-set>`, `<app>`, `<app-group>`, `<array>`, `<article-title>`, `<attrib>`, `<author-comment>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<city>`, `<code>`, `<collab>`, `<comment>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib-id>`, `<contributed-resource-group>`, `<copyright-holder>`, `<copyright-statement>`, `<corresp>`, `<country>`, `<custom-meta>`, `<custom-meta-group>`, `<data-title>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<email>`, `<era>`, `<etal>`, `<event>`, `<event-desc>`, `<explanation>`, `<ext-link>`, `<fig>`, `<fig-group>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<index-term>`, `<inline-formula>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-sponsor>`, `<issue-subtitle>`, `<issue-title>`, `<issue-title-group>`, `<journal-id>`, `<journal-subtitle>`, `<journal-title>`, `<kwd-group>`, `<label>`, `<license>`, `<list>`, `<list-item>`, `<long-desc>`, `<lpage>`, `<media>`, `<milestone-end>`, `<milestone-start>`, `<mixed-citation>`, `<month>`, `<name>`, `<named-content>`, `<nlm-citation>`, `<note>`, `<notes>`, `<on-behalf-of>`, `<open-access>`, `<option>`, `<p>`, `<page-range>`, `<part-title>`, `<patent>`, `<person-group>`, `<postal-code>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<product>`, `<pub-date>`, `<publisher-loc>`, `<publisher-name>`, `<question>`, `<question-preamble>`, `<question-wrap>`, `<question-wrap-group>`, `<rb>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<resource-group>`, `<resource-id>`, `<resource-name>`, `<response>`, `<role>`, `<rt>`, `<season>`, `<sec>`, `<see>`, `<see-also>`, `<self-uri>`, `<series>`, `<series-text>`, `<series-title>`, `<sig>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<state>`, `<statement>`, `<std>`, `<std-organization>`, `<string-date>`, `<string-name>`, `<styled-content>`, `<sub-article>`, `<subj-group>`, `<subtitle>`, `<suffix>`, `<supplement>`, `<supplementary-material>`, `<support-description>`, `<support-group>`, `<support-source>`, `<table-wrap>`, `<table-wrap-group>`, `<target>`, `<term>`, `<textual-form>`, `<trans-abstract>`, `<trans-source>`, `<trans-subtitle>`, `<trans-title>`, `<trans-title-group>`, `<uri>`, `<verse-group>`, `<verse-line>`, `<version>`, `<volume>`, `<volume-id>`, `<volume-issue-group>`, `<volume-series>`, `<xref>`, and `<year>`, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "en" for English or "de" for German) or for a language and a script ("ja-Kana").

9.5.158 @xmlns:ali NISO ALI Namespace (NISO Access and License Indicators)

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO *Access and License Indicators*) elements. All namespace prefixes must be associated with a URL, and the prefix "ali" has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices recommendation.

In elements <ali:free_to_read>, <ali:license_ref>, and <article>, this attribute *must* have the value http://www.niso.org/schemas/ali/1.0/ (as given below).

Value	Meaning
http://www.niso.org/schemas/ali/1.0/	The URI named in the NISO *Access License and Indicator*s for the ALI elements.

9.5.159 @xmlns:mml MathML Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix "mml" has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same namespace is used for both MathML 2.0 and MathML 3.0.

In elements <article> and <mml:math>, this attribute *must* have the value http://www.w3.org/1998/Math/MathML (as given below).

Value	Meaning
http://www.w3.org/1998/Math/MathML	The prefix "mml" has been set to the URL for the W3C MathML Tag Set.

9.5.160 @xmlns:xlink XLink Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the XLink linking attributes. All namespace prefixes must be associated with a URL, and the prefix "xlink" has been set to the URL for the World Wide Web Consortium (W3C) XLink Recommendation.

In element <article>, this attribute *must* have the value http://www.w3.org/1999/xlink (as given below).

Value	Meaning
http://www.w3.org/1999/xlink	The prefix "xlink" has been set to the URL for the W3C XLink Recommendation.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

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Value	Meaning
http://www.w3.org/1999/xlink	When this attribute is used, the prefix "xlink" should be set to the URL for the W3C XLink Recommendation.

9.5.161 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use in namespace pseudo-attributes such as @xsi:noNamespaceSchemaLocation. All namespace prefixes must be associated with a URL, and the prefix "xsi" has been set to the URL for the World Wide Web Consortium (W3C) XML Schema.

In element <article>, this attribute *must* have the value http://www.w3.org/2001/XMLSchema-instance (as given below).

Value	Meaning
http://www.w3.org/2001/XMLSchema-instance	The prefix "xsi" has been set to the URL of the W3C XML Schema.

9.5.162 @xml:space Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements <code>, <glyph-data>, and <preformat>, this attribute *must* have the value preserve (as given below).

Value	Meaning
preserve	White space should be preserved. (This value is fixed and cannot be changed in a document.).

9.5.163 @x-size X Size of the Glyph

The pixels per row in the bit-mapped glyph that has been declared with a <glyph-data> element as part of a <private-char> element.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A number	An integer number of pixels, for example, "45", that is the number of pixels in each row of the bitmap of the <glyph-data> element.

9.5.164 @xsi:noNamespaceSchemaLocation No Namespace Schema Location

A pseudo-attribute some processors use to point to the location of the Tag Set's XSD file. Cannot be used with DTDs.

In element <article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	File location of the XSD driver file.

9.5.165 @y-size Y Size of the Glyph

The number of rows in the bit-mapped glyph that has been declared with a <glyph-data> element as part of a <private-char> element.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Number	The number of rows (for example, "25") used to define the glyph in a <glyph-data> element.

10 Article Authoring Tag Set, version 1.3

10.1 Rationale

The Article Authoring Tag Set defines elements and attributes that describe the content and metadata of journal articles, including research articles; subject-review articles; non-research articles; letters; editorials; book, software, and product reviews; peer reviews, and author responses included with an article. The Tag Set allows for descriptions of the full article content and article header metadata.

The intent of the Authoring Tag Set is to create a standardized format for users to create new journal articles using model-driven tools (tools that read, interpret, and apply schemas in real time) and submit the articles to journals for publication consideration.

Because the Set is optimized for use with tools, Authoring is the most prescriptive Set in the overall Tag Suite. It includes many elements whose content must occur in a specified order and limits the options for formatting. For example, the Set does not allow explicit numbering on list items or citations. These are items that are determined by a journal's editorial style and are not appropriate for inclusion in the Authoring Tag Set.

This Tag Set describes an article model that is highly prescriptive with limited choices to support model-driven authoring and editing tools.

10.2 Scope

By design, this is a model for journal articles, such as the typical research article found in an STM journal, and not a model for complete journals. This Tag Set does not include an overarching model for a collection of articles. In addition, the following journal material is not described by this Tag Set:

- Company, product, or service display advertising
- Job search or classified advertising
- Calendars, meeting schedules, and conference announcements (except as these can be tagged as ordinary articles or as sections within articles)
- Material specific to an individual journal, such as Author Guidelines, Policy and Scope statements, editorial or advisory boards, detailed indicia, etc.

10.3 Article Structural Overview

The Article Authoring Tag Set defines a document that is a top-level component of a journal such as an article, a book or product review, or a letter to the editor. Each such document is composed of one or more parts; if there is more than one part, they must appear in the following order:

- **Processing Metadata** (optional). The metadata that concerns the XML file rather than the contents of the article.
- **Front matter** (required). The article front matter contains the metadata for the article (also called article header information), for example, the article title, the names of the contributor(s), and the abstract. This is not textual front matter as appears in books, rather this is bibliographic information about the article.
- **Body of the article** (required). The body of the article is the main textual and graphic content of the article. This usually consists of paragraphs and sections, which may themselves contain figures, tables, sidebars (boxed text), etc.
- **Back matter for the article** (optional). If present, the article back matter contains information that is ancillary to the main text, such as a glossary, appendix, or list of cited references.

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10.4 Elements

Each element in the Tag Set is listed and identified, and specifics of the model of the element in this Tag Set are provided.

Each element is identified with a <tag>, element name, and definition, as it is listed in Section 7, *Tag Suite Components*. Following that appears the modeling information specific to this Tag Set:

- any attributes the element may have in this Tag Set, including:
  - the attribute name and
  - the attribute's informal expanded name
- the element's content model, described in narrative form, in which:
  - the relationships among elements or groups of elements are specified, for example, "Any combination of" if the structures may occur in any sequence, or "The following, in order" if the structures must appear in the specified sequence
  - the elements are identified by their <tag>s and Element Names
  - notes indicating occurrence:
    - if the relationship indicator is "Any combination of" any of the elements therein may occur zero or more times in any sequence
    - if there is any other relationship indicator, it is assumed that an element must occur, and may occur only once unless there is a statement otherwise. Such statement may be "zero or one", "one or more", or "zero or more".

Note that for the convenience of the user these models are provided as XML DTDs, W3C XML Schemas (XSD), and as RELAX NG Schemas (RNG), which may be found at: https://jats.nlm.nih.gov

10.4.1 `<abbrev>` Abbreviation or Acronym

Abbreviation, acronym, or emoticon used in the text of a document, possibly including an expansion of the acronym.

Attributes:

`@alt` **Alternative Text**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<def>` **Definition List: Definition**

10.4.2 `<abstract>` Abstract

Summarized description of the content of a document or document component.

Attributes:

`@abstract-type` **Type of Abstract**

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<title>` **Title**, zero or one
- `<p>` **Paragraph**, zero or more
- `<sec>` **Section**, zero or more

10.4.3 `<access-date>` Access Date for Cited Work

This element is deprecated, Avoid using it; use `<date-in-citation>`.

Attributes:

`@calendar` **Calendar**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.4 `<ack>` Acknowledgments

Textual material that names the parties who the author wishes to thank or recognize for their assistance in/contributions toward the article, for example, producing the work, funding the work, inspiring the work, or assisting in the research on which the work is based.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<title>` **Title**, zero or one
- `<p>` **Paragraph**, zero or more

10.4.5 `<addr-line>` Address Line

One physical or logical line of an address.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**

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- ◦ <overline> **Overline**
- ◦ <roman> **Roman**
- ◦ <sans-serif> **Sans Serif**
- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <city> **City**
- <country> **Country: in an Address**
- <fax> **Fax Number: in an Address**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <phone> **Phone Number: in an Address**
- <postal-code> **Postal Code**
- <state> **State or Province**

10.4.6 <address> Address/Contact Information

Container element for contact information such as a postal address for a person or organization.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- Any combination of:
  - ◦ <institution> **Institution Name: in an Address**
  - ◦ <institution-wrap> **Institution Wrapper**
- <addr-line> **Address Line**, zero or more
- <city> **City**, zero or one
- <state> **State or Province**, zero or one
- <postal-code> **Postal Code**, zero or one
- <country> **Country: in an Address**
- <phone> **Phone Number: in an Address**, zero or more
- <fax> **Fax Number: in an Address**, zero or more
- Linking Elements
  - ◦ <email> **Email Address**, zero or more
  - ◦ <ext-link> **External Link**, zero or more
  - ◦ <uri> **Uniform Resource Identifier (URI)**, zero or more

10.4.7 <aff> Affiliation

Name of an institution or organization (for example, university, corporation) with which a contributor is affiliated.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters

- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <break> **Line Break**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.8 <aff-alternatives> Affiliation Alternatives

Container element to hold two or more representations of a single affiliation (for example, the name of a university in two or more languages such as both German and English).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<aff> **Affiliation**, one or more

10.4.9 <ali:free_to_read> Free to Read (NISO Access and License Indicators)

A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.

Attributes:

@content-type **Type of Content**
@end_date **End Date**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@start_date **Start Date**
@xml:base **Base**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**

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Content model:

This is an EMPTY element

10.4.10 <ali:license_ref> License Reference (NISO and Access License Indicators)

A reference to a URI that carries the license terms specifying how a work may be used.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@start_date` **Start Date**
`@xml:base` **Base**
`@xmlns:ali` **NISO ALI Namespace (NISO Access and License Indicators)**

Content model:

Text, numbers, or special characters

10.4.11 <alt-text> Alternate Text Name (for a figure, etc.)

Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a figure or a graphic, nearly always used for Accessibility.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

10.4.12 <alt-title> Alternate Title

An alternative or different version of the title of a work.

Attributes:

`@alt-title-type` **Type of Alternate Title**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**

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- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <break> **Line Break**

10.4.13 <alternatives> Alternatives For Processing

Container element used to hold a group of processing alternatives, for example, a single <graphic> that ships in several formats (tif, gif, and jpeg) or in different resolutions. This element is a physical grouping to contain multiple logically equivalent (substitutable) versions of the same information object. Typically these are processing alternatives, and the reader is expected to see only one version of the object.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- One or more of any of:
  - <chem-struct> **Chemical Structure (Display)**
  - <code> **Code**
  - <graphic> **Graphic**
  - Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <private-char> **Private Character (Custom or Unicode)**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table> **Table (NISO JATS table model)**
  - <textual-form> **Textual Form**
  - Math Element
    - <mml:math> **Math (MathML Tag Set)**

10.4.14 <annotation> Annotation in a Citation

Commentary, summary, review, or similar non-bibliographic information concerning the cited work.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**

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`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any one of:
- `<p>` **Paragraph**, one or more

10.4.15 `<anonymous>` Anonymous

Placeholder for the name of a contributor where the actual name is unknown or not disclosed.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

This is an EMPTY element

10.4.16 `<answer>` Answer to a Question

The correct answer to a question.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@pointer-to-question` **Pointer to Question**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<object-id>` **Object Identifier**, zero or more
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- `<subtitle>` **Document Subtitle**, zero or more
- `<alt-title>` **Alternate Title**, zero or more
- Any one of:
  - `<sec>` **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - `<answer>` **Answer to a Question**
      - `<answer-set>` **Answer Set**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<code>` **Code**
      - `<fig>` **Figure**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<question>` **Question**
      - `<question-wrap>` **Question Wrapper**
      - `<question-wrap-group>` **Question Wrapper Group**
      - `<supplementary-material>` **Supplementary Material Metadata**
      - `<table-wrap>` **Table Wrapper**
      - `<disp-formula>` **Formula, Display**
      - `<disp-formula-group>` **Formula, Display Group**
      - Lists
        - `<def-list>` **Definition List**
        - `<list>` **List**

        - Math Element
            - <mml:math> **Math (MathML Tag Set)**
        - <p> **Paragraph**
        - <related-article> **Related Article Information**
        - <related-object> **Related Object Information**
        - <disp-quote> **Quote, Displayed**
        - <speech> **Speech**
        - <statement> **Statement, Formal**
        - <verse-group> **Verse Form for Poetry**
    - <sec> **Section**, zero or more
- Any combination of:
    - <glossary> **Glossary Elements List**
    - <ref-list> **Reference List (Bibliographic)**
- <explanation> **Explanation**, zero or more

10.4.17 <answer-set> Answer Set

A series of answers, typically grouped for display purposes.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- One or more of any of:
    - <answer> **Answer to a Question**
    - <p> **Paragraph**
    - <explanation> **Explanation**

10.4.18 <app> Appendix

Additional material added to a document that typically follows the body of the document. This is ancillary or supporting material, not a direct continuation of the text of the document.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- The following, in order:
    - <title> **Title**
    - Any combination of:
        - Paragraph-level Display Elements
            - <answer> **Answer to a Question**
            - <answer-set> **Answer Set**
            - <boxed-text> **Boxed Text**
            - <chem-struct-wrap> **Chemical Structure Wrapper**
            - <code> **Code**
            - <explanation> **Explanation**

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- <fig> **Figure**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- <supplementary-material> **Supplementary Material Metadata**
- <table-wrap> **Table Wrapper**

▪ <disp-formula> **Formula, Display**
▪ <disp-formula-group> **Formula, Display Group**
▪ Lists
- <def-list> **Definition List**
- <list> **List**

▪ <p> **Paragraph**
▪ <disp-quote> **Quote, Displayed**
▪ <speech> **Speech**
▪ <statement> **Statement, Formal**
▪ <verse-group> **Verse Form for Poetry**

◦ <sec> **Section**, zero or more

• <permissions> **Permissions**, zero or one

10.4.19 <app-group> Appendix Group

Container element for one or more appendices (<app> elements).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more
- <app> **Appendix**, zero or more

10.4.20 <array> Array (Simple Tabulation)

Tabular arrangement of text in the narrative flow of the document. Unlike a <table-wrap>, an array does not contain a label, title, caption, or table headings (column heads).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**

- Any one of:
  - Any combination of:
    - <alternatives> **Alternatives For Processing**
    - <graphic> **Graphic**
    - <media> **Media Object**
  - <tbody> **Table Body (NISO JATS table model)**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

10.4.21 <article> Article

A journal article.

Attributes:

@article-type **Type of Article**
@dtd-version **Version of the Tag Set (DTD)**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**
@xmlns:ali **NISO ALI Namespace (NISO Access and License Indicators)**
@xmlns:mml **MathML Namespace Declaration**
@xmlns:xlink **XLink Namespace Declaration**
@xmlns:xsi **XML Schema Namespace Declaration**
@xsi:noNamespaceSchemaLocation **No Namespace Schema Location**

Content model:

The following, in order:

- <processing-meta> **Processing Metadata**, zero or one
- <front> **Front Matter**
- <body> **Body of the Document**
- <back> **Back Matter**, zero or one

10.4.22 <article-meta> Article Metadata

Container element for information concerning the article that identifies or describes the article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <article-version> **Article Current Version Status or Number**, zero or one
- <title-group> **Title Group**
- <contrib-group> **Contributor Group**
- Any combination of:
  - <product> **Product Information**
  - <supplementary-material> **Supplementary Material Metadata**
- <permissions> **Permissions**, zero or one
- <self-uri> **URI for This Same Article Online**, zero or more
- Any combination of:
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- <abstract> **Abstract**, one or more
- <kwd-group> **Keyword Group**, zero or more
- <funding-group> **Funding Group**, zero or more
- <support-group> **Support Group**, zero or more
- <conference> **Conference Information**, zero or more

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10.4.23 <article-title> Article Title

Full title of an article.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <break> **Line Break**

10.4.24 <article-version> Article Current Version Status or Number

Holds version information such as a version type, version status, version statement, or version number for the current article.

Attributes:

@article-version-type **Type of the Article Version Statement**
@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@designator **Designator**

`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

10.4.25 <attrib> Attribution

Container element for information concerning the origin of an extract, figure, display quote, table, verse, or similar element.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Other Inline Elements

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- ◦ <abbrev> **Abbreviation or Acronym**
- ◦ <index-term> **Index Term**
- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**

- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.26 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, one or more

10.4.27 <award-desc> Award Description

Descriptive text associated with an award ID or award name, which may express, for example, the type of award ("Post-doc fellowship", "operating grant"), something about the award ("statutory funds"), or a description of the award ("a research grant for developing innovative cancer treatments").

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.28 <award-group> Award Group

Container element for information concerning one award of the possibly multiple sources of support for this work (or the research on which the work was based).

Attributes:

@award-type **Type of Award**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**

`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- Any one of:
  - `<funding-source>` **Funding Source**, zero or more
  - `<support-source>` **Support Source**, zero or more
- `<award-id>` **Award Identifier**, zero or more
- `<award-name>` **Award Name**, zero or one
- `<award-desc>` **Award Description**, zero or one
- `<principal-award-recipient>` **Principal Award Recipient**, zero or more
- `<principal-investigator>` **Principal Investigator**, zero or more

10.4.29 `<award-id>` Award Identifier

Unique identifier assigned to an award, contract, or grant.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@award-id-type` **Type of Identifier for an Award**
`@award-type` **Type of Award**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.30 `<award-name>` Award Name

Some awards are known by specific names, for historical reasons or to honor a funder, mentor, or researcher. This element holds the text of such a name, such as the "`Marie Curie Career Integration Grant`", the "`Schleswig-Holstein Excellence Chair`" or the "`Wolfson Merit Award`".

Attributes:

`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**

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`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.31 <back> Back Matter

Material published with an article but following the narrative flow.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

The following, in order:

- `<ack>` **Acknowledgments** , zero or one
- `<glossary>` **Glossary Elements List**, zero or one
- `<ref-list>` **Reference List (Bibliographic)**, zero or more
- `<app-group>` **Appendix Group**, zero or one

10.4.32 <bio> Biography

Biographical data concerning a contributor or the description of a collaboration.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- `<title>` **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<answer>` **Answer to a Question**
    - `<answer-set>` **Answer Set**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<code>` **Code**
    - `<explanation>` **Explanation**
    - `<fig>` **Figure**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<question>` **Question**
    - `<question-wrap>` **Question Wrapper**
    - `<question-wrap-group>` **Question Wrapper Group**
    - `<supplementary-material>` **Supplementary Material Metadata**
    - `<table-wrap>` **Table Wrapper**
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**
  - Lists

        - <def-list> **Definition List**
        - <list> **List**
      - <p> **Paragraph**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
  - <sec> **Section**, zero or more

10.4.33 <body> Body of the Document

Main textual portion of the document that conveys the narrative content.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- Any combination of:
  - Paragraph-level Display Elements
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <p> **Paragraph**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- <sec> **Section**, zero or more

10.4.34 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements

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- ◦ <email> **Email Address**
- ◦ <ext-link> **External Link**
- ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.35 <boxed-text> Boxed Text

Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - ◦ Paragraph-level Display Elements
    - ▪ <answer> **Answer to a Question**
    - ▪ <answer-set> **Answer Set**
    - ▪ <boxed-text> **Boxed Text**

        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <code> **Code**
        - <explanation> **Explanation**
        - <fig> **Figure**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - <p> **Paragraph**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
  - <sec> **Section**, zero or more
  - Ownership Elements
    - <attrib> **Attribution**, zero or one
    - <permissions> **Permissions**, zero or one

10.4.36 <break> Line Break

An explicit line break in the text.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

10.4.37 <caption> Caption of a Figure, Table, etc.

Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

10.4.38 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter. This element is deprecated in JATS. Avoid using it; use <part-title> instead.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**

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`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<abbrev>` **Abbreviation or Acronym**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.39 `<chem-struct>` Chemical Structure (Display)

Chemical expression, reaction, equation, etc. that is set apart within the text.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <break> **Line Break**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <object-id> **Object Identifier**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.40 <chem-struct-wrap> Chemical Structure Wrapper

Wrapper element for a chemical expression, reaction, equation, etc. that is set apart from the text; includes any number, label, or caption that accompanies the chemical expression.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**

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- One or more of any of:
  - <alternatives> **Alternatives For Processing**
  - <chem-struct> **Chemical Structure (Display)**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <textual-form> **Textual Form**
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.41 <citation-alternatives> Citation Alternatives

Holds alternative versions of a single citation, for example, the same citation in multiple languages or a single citation tagged as both a <mixed-citation> complete with punctuation and spacing preserved and as an <element-citation> with punctuation and spacing removed.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- One or more of any of:
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**

10.4.42 <city> City

The name of a city.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.43 <code> Code

A container element for technical content such as programming language code, pseudo-code, schemas, or a markup fragment.

Attributes:

@code-type **Type of Code**
@code-version **Code Version**
@executable **Executable**
@id **Document Internal Identifier**
@language **Code Language**
@language-version **Code Language Version**
@orientation **Orientation**
@platforms **Platforms**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

`@xml:space` **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- `<private-char>` **Private Character (Custom or Unicode)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.44 `<col>` Table Column (NISO JATS table model)

The description of one column of a table, used to provide attributes relating to a specific column. If there is no `<col>` element these attributes will be inherited from the associated `<colgroup>`. (This element is based on and intended to be converted easily to the XHTML `col` element.)

Attributes:

`@align` **Horizontal Alignment (NISO JATS table model)**
`@char` **Table Cell Alignment Character (NISO JATS table model)**
`@charoff` **Table Character Offset (NISO JATS table model)**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@span` **Span (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@width` **Width (NISO JATS table model)**
`@xml:base` **Base**

Content model:

This is an EMPTY element

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10.4.45 <colgroup> Table Column Group (NISO JATS table model)

A container element to hold column descriptions (element <col>) for a group of columns in a table—or for all of the columns in the table if there is only one <colgroup> in the table. Attributes on the <colgroup> apply to all of the columns in the group unless over-ridden on the <col>. (This element is based on and intended to be converted easily to the XHTML colgroup element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

<col> **Table Column (NISO JATS table model)**, zero or more

10.4.46 <collab> Collaborative (Group) Author

Group of contributors credited under a single name, such as an organization credited as a contributor.

Attributes:

@collab-type **Type of Collaboration**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**

    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <institution-wrap> **Institution Wrapper**
    - <phone> **Phone Number: in an Address**
    - <postal-code> **Postal Code**
    - <state> **State or Province**
- <address> **Address/Contact Information**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <author-comment> **Author Comment**
- <bio> **Biography**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- <on-behalf-of> **On Behalf of**
- <role> **Role or Function Title of Contributor**
- <xref> **X (cross) Reference**

10.4.47 <collab-alternatives> Collaboration Alternatives

Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

<collab> **Collaborative (Group) Author**, one or more

10.4.48 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**

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    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.49 <compound-kwd> Compound Keyword

Wrapper element for multi-part keywords (for example, a code and its meaning).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

<compound-kwd-part> **Compound Keyword Part**, one or more

10.4.50 <compound-kwd-part> Compound Keyword Part

Individual component of a multi-part keyword (for example, a code, the code's meaning).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**

    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.51 <compound-subject> Compound Subject Name

Wrapper element to hold all the parts of a multi-part subject (for example, a subject term and the code representing that term).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

<compound-subject-part> **Compound Subject Part Name**, one or more

10.4.52 <compound-subject-part> Compound Subject Part Name

Individual component of a multi-part subject (for example, subject term, code for the term).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements

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    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
  - Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.53 <conf-acronym> Conference Acronym

Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.54 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.55 <conf-loc> Conference Location

Physical location(s) of a conference (for example, city, country, campus, organization location).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**

- <phone> **Phone Number: in an Address**
- <postal-code> **Postal Code**
- <state> **State or Province**

10.4.56 <conf-name> Conference Name

Full name of a conference, including any qualifiers such as “43rd Annual”.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.57 <conf-num> Conference Number

Sequential number of a conference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.58 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

10.4.59 <conf-theme> Conference Theme

Theme, slogan, or major subject area of a conference.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements

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    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.60 <conference> Conference Information

Container element to contain information about a single conference and its proceedings.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <conf-date> **Conference Date**
- One or more of any of:
    - <conf-name> **Conference Name**
    - <conf-acronym> **Conference Acronym**
- <conf-num> **Conference Number**, zero or one
- <conf-loc> **Conference Location**, zero or one
- <conf-sponsor> **Conference Sponsor**, zero or more
- <conf-theme> **Conference Theme**, zero or one

10.4.61 <contrib> Contributor

Container element for information about a single author, editor, or other contributor to the article.

Attributes:

`@contrib-type` **Type of Contribution**
`@corresp` **Corresponding Author**
`@deceased` **Deceased**
`@equal-contrib` **Equal Contribution**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- `<contrib-id>` **Contributor Identifier**, zero or more
- Any combination of:
  - Contributor Naming Elements
    - `<anonymous>` **Anonymous**
    - `<collab>` **Collaborative (Group) Author**
    - `<collab-alternatives>` **Collaboration Alternatives**
    - `<name>` **Name of Person**
    - `<name-alternatives>` **Name Alternatives**
    - `<string-name>` **Name of Person (Unstructured)**
- `<degrees>` **Degree(s)**, zero or more
- `<role>` **Role or Function Title of Contributor**, zero or more
- `<on-behalf-of>` **On Behalf of**, zero or one
- Any combination of:
  - `<aff>` **Affiliation**
  - `<aff-alternatives>` **Affiliation Alternatives**
- `<address>` **Address/Contact Information**, zero or more
- Linking Elements
  - `<email>` **Email Address**, zero or more
  - `<ext-link>` **External Link**, zero or more
  - `<uri>` **Uniform Resource Identifier (URI)**, zero or more
- `<bio>` **Biography**, zero or one
- `<author-comment>` **Author Comment**, zero or one

10.4.62 `<contrib-group>` Contributor Group

Container element for one or more contributors and information about those contributors.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

`<contrib>` **Contributor**, one or more

10.4.63 `<contrib-id>` Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element may hold, for example, an ORCID, a trusted publisher's identifier, a JST identifier (Japan Science and Technology Agency), an arXiv Author ID, or a Scopus Author ID.

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Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@authenticated` **Authenticated**
`@content-type` **Type of Content**
`@contrib-id-type` **Contributor Identifier Type**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

10.4.64 <contributed-resource-group> Contributed Resource Group

Container element for information concerning non-financial support for the research reported in the work (typically an article). Such support may include facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

`@id` **Document Internal Identifier**
`@resource-type` **Resource Type**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<award-group>` **Award Group**, zero or more
- `<support-description>` **Support Description**, zero or more
- `<resource-group>` **Resource Group**, zero or more

10.4.65 <copyright-holder> Copyright Holder

Name of the organizational or personal entity that holds a copyright.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.66 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.67 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

10.4.68 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.69 <custom-meta> Custom Metadata

Wrapper element for a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**

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@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:
- <meta-name> **Metadata Data Name for Custom Metadata**
- <meta-value> **Metadata Data Value for Custom Metadata**

10.4.70 <custom-meta-group> Custom Metadata Group

Container element for metadata not otherwise defined in the Tag Suite.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

<custom-meta> **Custom Metadata**, one or more

10.4.71 <data-title> Data Title

The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.72 <date> Date

Container element for the parts of a single calendar date.

Attributes:

@calendar **Calendar**
@date-type **Type of Date**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- Optionally any one of:
    - The following, in order:
        - <day> **Day**, zero or one
        - <month> **Month**, zero or one
    - <season> **Season**
- <year> **Year**
- <era> **Era of Time**, zero or one

10.4.73 <date-in-citation> Date within a Citation

Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**

10.4.74 <day> Day

Numeric, two-digit value of the day of the month.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**

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`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

10.4.75 <def> Definition List: Definition

Definition, explanation, or expansion of a word, phrase, or abbreviation.

Attributes:

`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any one of:
- `<p>` **Paragraph**, one or more

10.4.76 <def-head> Definition List: Definition Head

Heading over the second column (the definition column) of a definition list (two-part list).

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**

    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.77 <def-item> Definition List: Definition Item

One item in a definition (two-part) list.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <term> **Definition List: Term**
- <def> **Definition List: Definition**, zero or more

10.4.78 <def-list> Definition List

List in which each item consists of two parts: 1) a word, phrase, term, graphic, chemical structure, or equation, that is paired with 2) one or more descriptions, discussions, explanations, or definitions of it.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <term-head> **Definition List: Term Head**, zero or one
- <def-head> **Definition List: Definition Head**, zero or one
- <def-item> **Definition List: Definition Item**, one or more

10.4.79 <degrees> Degree(s)

Academic titles or professional certifications displayed following a personal name (for example, “MD”, “PhD”).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.80 <disp-formula> Formula, Display

Mathematical equation, expression, or formula that is to be displayed as a block (callout) within the narrative flow.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<break>` **Line Break**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<caption>` **Caption of a Figure, Table, etc.**
- Ownership Elements
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- `<code>` **Code**
- `<graphic>` **Graphic**
- `<media>` **Media Object**
- `<preformat>` **Preformatted Text**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.81 `<disp-formula-group>` Formula, Display Group

Container element for equations or other mathematical expressions.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

`@xml:lang` **Language**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<caption>` **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
  - Linking Elements
    - `<email>` **Email Address**
    - `<ext-link>` **External Link**
    - `<uri>` **Uniform Resource Identifier (URI)**
- Any combination of:
  - `<disp-formula>` **Formula, Display**
  - `<disp-formula-group>` **Formula, Display Group**

10.4.82 `<disp-quote>` Quote, Displayed

Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<title>` **Title**, zero or one
- `<p>` **Paragraph**, one or more
- Ownership Elements
  - `<attrib>` **Attribution**, zero or one
  - `<permissions>` **Permissions**, zero or one

10.4.83 `<edition>` Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

`@content-type` **Type of Content**
`@designator` **Designator**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.84 `<element-citation>` Element Citation

Bibliographic description of a work. Includes bibliographic reference elements only. Does not include untagged text, spacing, or punctuation.

Attributes:

`@hreflang` **Language of the Link Target**

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`@id` **Document Internal Identifier**
`@publication-format` **Format of Publication**
`@publication-type` **Type of Referenced Publication**
`@publisher-type` **Type of Publisher**
`@specific-use` **Specific Use**
`@use-type` **Type of Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

One or more of any of:

- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<annotation>` **Annotation in a Citation**
- `<article-title>` **Article Title**
- `<chapter-title>` **Chapter Title in a Citation**
- `<collab>` **Collaborative (Group) Author**
- `<collab-alternatives>` **Collaboration Alternatives**
- `<comment>` **Comment in a Citation**
- `<conf-acronym>` **Conference Acronym**
- `<conf-date>` **Conference Date**
- `<conf-loc>` **Conference Location**
- `<conf-name>` **Conference Name**
- `<conf-sponsor>` **Conference Sponsor**
- `<data-title>` **Data Title**
- `<date>` **Date**
- `<date-in-citation>` **Date within a Citation**
- `<day>` **Day**
- `<edition>` **Edition Statement, Cited**
- Linking Elements
  - `<email>` **Email Address**

    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.85 <location-id> Electronic Location Identifier

Bibliographic identifier for a document that does not have traditional printed page numbers.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters

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10.4.86 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.87 <era> Era of Time

A specified range of years that is named for an event, political ruler, or characterization of the timespan.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.88 <etal> Et Al.

Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.89 <explanation> Explanation

An explanation of why an answer is correct, or why an option is or is not correct. An explanation may provide additional information about a question, point to text that may provide useful information, or describe why one answer might be confused with another.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@pointer-to-explained **Pointer to Object Described in Explanation**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <boxed-text> **Boxed Text**
      - <chem-struct-wrap> **Chemical Structure Wrapper**
      - <code> **Code**
      - <fig> **Figure**
      - <graphic> **Graphic**
      - <media> **Media Object**
      - <preformat> **Preformatted Text**
      - <question> **Question**
      - <question-wrap> **Question Wrapper**
      - <question-wrap-group> **Question Wrapper Group**
      - <supplementary-material> **Supplementary Material Metadata**
      - <table-wrap> **Table Wrapper**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Element
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
    - <sec> **Section**, zero or more
- Any combination of:
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

10.4.90 <ext-link> External Link

Link to an external file or resource.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xml:base **Base**

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@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.91 <extended-by> Extended-by Model

Identification of a JATS extension that the document claims to be following.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.92 <fax> Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.93 <fig> Figure

Block of graphical or textual material that is identified as a figure, usually bearing a caption and a label such as "Figure 3." or "Figure".

Attributes:

@fig-type **Type of Figure**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
- Any combination of:
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - <table-wrap> **Table Wrapper**
  - <p> **Paragraph**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <xref> **X (cross) Reference**
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.94 <fixed-case> Fixed Case

Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**

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- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.95 <fn> Footnote

Additional information tied to a particular location in the text. This material is not considered to be part of the body of the text, but is a note used instead of, in addition to, as a source for, or as a commentary on either some body text or on an element in the metadata such as an author.

Attributes:

@custom-type **Custom Attribute Value Escape Hatch**
@fn-type **Type of Footnote**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- <p> **Paragraph**, one or more

10.4.96 <fn-group> Footnote Group

Container element for footnotes that appear at the end of the document.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**

`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<title>` **Title**, zero or one
- `<fn>` **Footnote**, one or more

10.4.97 `<fpage>` First Page

Page number on which a document starts.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

10.4.98 `<front>` Front Matter

Container element for the metadata of an article and the journal in which it was published.

Attributes:

`@id` **Document Internal Identifier**
`@xml:base` **Base**

Content model:

`<article-meta>` **Article Metadata**

10.4.99 `<funding-group>` Funding Group

Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<award-group>` **Award Group**, zero or more
- `<funding-statement>` **Funding Statement**, zero or more
- `<open-access>` **Open Access**, zero or more

10.4.100 `<funding-source>` Funding Source

Agency or organization that funded the research on which a work was based.

Attributes:

`@country` **Country**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@source-type` **Source Type**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**

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`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**

10.4.101 `<funding-statement>` Funding Statement

Displayable prose statement that describes the funding for the research on which a work was based.

Attributes:

`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.102 `<given-names>` Given (First) Names

All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.

Attributes:

`@id` **Document Internal Identifier**
`@initials` **Initials for Personal Names**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.103 <glossary> Glossary Elements List

Section whose content is typically a list of terms and definitions, usually tagged as one or more two-part lists called <def-list>. Typically part of the back matter of a document.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more
- <def-list> **Definition List**, zero or more
- <glossary> **Glossary Elements List**, zero or more

10.4.104 <glyph-data> Glyph Data for a Private Character

Most characters in an XML document can be expressed as regular Unicode® codes. Characters not in the Unicode Standard tables have traditionally been expressed as explicit font calls (non-portable), created as inline graphics, or defined in one of the Unicode private-use areas where users may define their own characters. The <glyph-data> element is used when there is known to be no font available to render a private-use character. This element provides information on the actual glyph that is associated with the private-use character.

Attributes:

@fontchar **Font Character Table Offset**
@fontname **Font Name**
@format **Format**
@id **Document Internal Identifier**
@resolution **Resolution of the Glyph Bitmap**
@xml:base **Base**
@xml:space **Space**
@x-size **X Size of the Glyph**
@y-size **Y Size of the Glyph**

Content model:

Text, numbers, or special characters

10.4.105 <glyph-ref> Glyph Reference for a Private Character

Once a private character has been declared using a <glyph-data> element, the character need not be defined with the same <glyph-data> element every time it is used. The character can be reused by using the <glyph-ref> element to point to the full <glyph-data> element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <glyph-ref> element to point to the @id attribute of an existing <glyph-data> element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.

Attributes:

@glyph-data **Glyph Data Character Being Referenced**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

10.4.106 <gov> Government Report, Cited

Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.107 `<graphic>` Graphic

Description of and pointer to an external file containing a still image.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:
- `<object-id>` **Object Identifier**, zero or one
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
    - `<long-desc>` **Long Description**
- `<xref>` **X (cross) Reference**, zero or more
- Ownership Elements
  - `<attrib>` **Attribution**, zero or one
  - `<permissions>` **Permissions**, zero or one

10.4.108 <hr> Horizontal Rule

An explicit horizontal rule.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

10.4.109 <index-term> Index Term

The index term to be embedded into the narrative of an article so that an Index can be created programmatically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@index-type **Type of Index**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <term> **Definition List: Term**
- Any one of:
  - <index-term> **Index Term**
  - Any combination of:
    - <see> **See**
    - <see-also> **See-Also**

10.4.110 <index-term-range-end> Index Term Range End

The marker for the end of a range when an index term embedded into the narrative of a document is the start of a range.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

10.4.111 <inline-formula> Formula, Inline

Mathematical equation, expression, or formula that is to be displayed inline. The mathematics itself can be expressed as ASCII characters, as a graphic, or using TeX, LaTeX, or MathML mathematics expressions.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters

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- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.112 <inline-graphic> Graphic, Inline

Description of and pointer to an external graphic that is displayed or set in the same line as the text.

Attributes:

@baseline-shift **Baseline Shift**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**

10.4.113 <inline-media> Inline Media Object

Description of and pointer to an external file that holds an inline media object (for example, a pronunciation file for a word or character).

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@specific-use` **Specific Use**
`@vocab` **Vocabulary/Taxonomy Name**
`@vocab-identifier` **Vocabulary/Taxonomy Identifier**
`@vocab-term` **Vocabulary/Taxonomy Term**
`@vocab-term-identifier` **Vocabulary/Taxonomy Term Identifier**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.114 `<inline-supplementary-material>` Inline Supplementary Material Metadata

Inline description of, and possibly a pointer to, an external file that provides supplementary information for the document.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**
`@specific-use` **Specific Use**

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`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.115 `<institution>` Institution Name: in an Address

Name of an institution or organization (for example, a university or corporation).

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Baseline Change Elements
  - `<sub>` **Subscript**

- <sup> **Superscript**

10.4.116 <institution-id> Institution Identifier

A externally defined institutional identifier, for example, a publisher-defined identifier or one defined by an ISO standard, such as “ISNI” or “ISLL”.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@institution-id-type **Type of Institution Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.117 <institution-wrap> Institution Wrapper

A wrapper element to hold both the name of an institution (<institution>) and any identifiers for that institution (<institution-id>), for example, an INSI or Ringgold ID.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- <institution> **Institution Name: in an Address**
- <institution-id> **Institution Identifier**

10.4.118 <isbn> ISBN

International Standard Book Number, the international code for identifying a particular product form or edition of a publication, typically a monographic publication.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.119 <issn> ISSN International Standard Serial Number

Standard code assigned by the ISSN network for the unique identification of serials and other continuing resources in a defined medium version.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@pub-type **Type of Publication**
@specific-use **Specific Use**

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`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.120 <issn-l> ISSN-L (Linking ISSN)

An ISSN designated by an ISSN Centre to group together the different media versions of a work. Since a single ISSN-L is assigned no matter how many media formats of a work there are, the ISSN-L can be used to link among the different media versions of the work or continuing resource, for example, both the printed and online versions of the work.

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.121 <issue> Issue Number

Issue number of a journal, or in rare instances, a book.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.122 <issue-id> Issue Identifier

Name or identifier of an entire journal issue (for example, a DOI).

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

10.4.123 <issue-part> Issue Part

Number, name, or other identifier of a sub-part of a journal issue.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.124 <issue-title> Issue Title

Theme or special title for a journal issue.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.125 <italic> Italic

Used to mark text that should appear in an italic or slanted font.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@toggle` **Toggle Switch**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**

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- ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.126 <journal-id> Journal Identifier

Short code or abbreviation used as an identifier for a journal.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.127 <kwd> Keyword

A keyword is a finding aid used to record one subject term, key phrase, abbreviation, indexing word, taxonomic structure, or other expression that is associated with a whole structure (such as an article). Keywords can be used for identification, searching, and indexing purposes. A keyword element (<kwd>) may contain a repetition of words found in the structure, or it may contain broader terms, narrower terms, related terms, or taxonomic identifiers used to find the structure in a search or provide semantic classification of the text by mapping a specific structure to a taxonomy.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**

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- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.128 <kwd-group> Keyword Group

Container element for one set of keywords (such as <kwd>s, <nested-kwd>s, or <compound-kwd>s) used to describe a document.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@kwd-group-type **Type or Kind of Keywords in the Group**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- One or more of any of:
  - ◦ <kwd> **Keyword**
  - ◦ <compound-kwd> **Compound Keyword**
  - ◦ <nested-kwd> **Nested Keyword**

10.4.129 <label> Label (of an Equation, Figure, Reference, etc.)

Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.130 <license> License Information

Set of conditions under which the content may be used, accessed, and distributed.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@license-type **Type of License**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**

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@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any one of:
- One or more of any of:
  - <ali:license_ref> **License Reference (NISO and Access License Indicators)**
  - <license-p> **License Paragraph**

10.4.131 <license-p> License Paragraph

Paragraph of text within the description of a <license>.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

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- ◦ <sc> **Small Caps**
- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- Math Element
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <price> **Price**

10.4.132 <list> List

Sequence of two or more items, which may or may not be ordered.

Attributes:

@continued-from **Continued From**
@id **Document Internal Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <list-item> **List Item**, one or more

10.4.133 <list-item> List Item

Single item (one entry) in a list of items.

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Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<label>` **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- `<title>` **Title**, zero or one
- One or more of any of:
  - `<p>` **Paragraph**
  - Lists
    - `<def-list>` **Definition List**
    - `<list>` **List**

10.4.134 `<long-desc>` Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box, typically used to make the object accessible.

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.135 `<lpage>` Last Page

Page number on which a document ends.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

10.4.136 `<media>` Media Object

Description of and pointer to an external file that holds a media object (for example, an animation, a movie).

Attributes:

`@content-type` **Type of Content**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@mime-subtype` **Mime Subtype**
`@mimetype` **Mime Type**

@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
- <xref> **X (cross) Reference**, zero or more
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.137 <meta-name> Metadata Data Name for Custom Metadata

Name of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.138 <meta-value> Metadata Data Value for Custom Metadata

Value of a single piece of metadata not otherwise defined in the Tag Suite.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**

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- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.139 <mixed-citation> Mixed Citation

Bibliographic description of a work. Includes a combination of bibliographic reference elements and untagged text. Spacing and punctuation are preserved.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@use-type **Type of Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**

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- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.140 <mml:math> Math (MathML Tag Set)

Use documentation for the Mathematical Markup Language (MathML) Tag Set (https://www.w3.org/TR/MathML3/ or https://www.w3.org/TR/MathML2/).

Attributes:

@xmlns:mml **MathML Namespace Declaration**

10.4.141 <monospace> Monospace Text (Typewriter Text)

Used to mark text that should appear in a non-proportional font, such as courier.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**

- ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.142 <month> Month

Names one of the months of the year, such as "July" or "07".

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.143 <name> Name of Person

Container element for the component elements of personal names, such as a <surname>.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@name-style **Name Style**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- Any one of:
  - ◦ The following, in order:
    - ▪ <surname> **Surname**
    - ▪ <given-names> **Given (First) Names**, zero or one
  - ◦ <given-names> **Given (First) Names**
- <prefix> **Prefix**, zero or one
- <suffix> **Suffix**, zero or one

10.4.144 <name-alternatives> Name Alternatives

Container element for more than one version of a personal name, the element <name> (for example, the name written in both Japanese Kana characters and the Latin alphabet).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

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Content model:

Any one of:

- One or more of any of:
  - <name> **Name of Person**
  - <string-name> **Name of Person (Unstructured)**

10.4.145 <named-content> Named Special (Subject) Content

Word or phrase whose content/subject matter has distinct semantics or content-related significance.

Attributes:

@alt **Alternative Text**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Emphasis Elements

- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <ruby> **Ruby Annotation Wrapper**

- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

10.4.146 <nested-kwd> Nested Keyword

A hierarchically-structured keyword, such as a keywords from a controlled vocabulary.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

Content model:

The following, in order:

- One or more of any of:
  - <kwd> **Keyword**
  - <compound-kwd> **Compound Keyword**
- <nested-kwd> **Nested Keyword**, zero or more

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10.4.147 <nlm-citation> NLM Citation

This element is deprecated. Avoid using it; use <element-citation>.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@publication-format **Format of Publication**
@publication-type **Type of Referenced Publication**
@publisher-type **Type of Publisher**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- Any combination of:
  - <person-group> **Person Group for a Cited Publication**
  - <collab> **Collaborative (Group) Author**
- Any combination of:
  - <article-title> **Article Title**
  - <trans-title> **Translated Title**
- <source> **Source**, zero or one
- <patent> **Patent Number, Cited**, zero or one
- <trans-source> **Translated Source**, zero or one
- <year> **Year**, zero or one
- Any one of:
  - The following, in order:
    - <month> **Month**, zero or one
    - <day> **Day**, zero or one
    - <time-stamp> **Time Stamp for Cited Work**, zero or one
  - <season> **Season**, zero or one
- <access-date> **Access Date for Cited Work**, zero or one
- <volume> **Volume Number**, zero or one
- <edition> **Edition Statement, Cited**, zero or one
- <conf-name> **Conference Name**, zero or one
- <conf-date> **Conference Date**, zero or one
- <conf-loc> **Conference Location**, zero or one
- Any combination of:
  - <issue> **Issue Number**
  - <supplement> **Supplement Information**
- <publisher-loc> **Publisher's Location**, zero or one
- <publisher-name> **Publisher's Name**, zero or one
- Zero or more occurrences of the following, in order:
  - <fpage> **First Page**, zero or one
  - <lpage> **Last Page**, zero or one
- <page-count> **Page Count**, zero or one
- <series> **Series**, zero or one
- <comment> **Comment in a Citation**, zero or more
- <pub-id> **Publication Identifier for a Cited Publication**, zero or more
- <annotation> **Annotation in a Citation**, zero or one

10.4.148 <object-id> Object Identifier

Unique identifier (such as a DOI or URI) for a component *within* an article (for example, for a figure or a table).

Attributes:

`@assigning-authority` **Authority Responsible for an Identifier**
`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters

10.4.149 <on-behalf-of> On Behalf of

When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work "on behalf of" that organization or group, and this element holds the name of the organization or group.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**

10.4.150 <open-access> Open Access

Open access provisions that apply to a work or the funding information that provided the open access provisions.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any one of:

- `<p>` **Paragraph**, one or more

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10.4.151 <option> Answer Option (for a question)

One of the possible answer choices for a multiple-choice question.

Attributes:

@content-type **Type of Content**
@correct **Correct Option Flag**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:
      - <answer> **Answer to a Question**
      - <answer-set> **Answer Set**
      - <boxed-text> **Boxed Text**
      - <chem-struct-wrap> **Chemical Structure Wrapper**
      - <code> **Code**
      - <fig> **Figure**
      - <graphic> **Graphic**
      - <media> **Media Object**
      - <preformat> **Preformatted Text**
      - <question> **Question**
      - <question-wrap> **Question Wrapper**
      - <question-wrap-group> **Question Wrapper Group**
      - <supplementary-material> **Supplementary Material Metadata**
      - <table-wrap> **Table Wrapper**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - Math Element
        - <mml:math> **Math (MathML Tag Set)**
      - <p> **Paragraph**
      - <related-article> **Related Article Information**
      - <related-object> **Related Object Information**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
    - <sec> **Section**, zero or more
- Any combination of:
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**
- <explanation> **Explanation**, zero or more

10.4.152 <overline> Overline

Used to mark text that should appear with a horizontal line above each character.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@toggle` **Toggle Switch**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**

10.4.153 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- Math Element
  - <mml:math> **Math (MathML Tag Set)**

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- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.154 <page-count> Page Count

Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

Attributes:

@count **Count**
@id **Document Internal Identifier**
@xml:base **Base**

Content model:

This is an EMPTY element

10.4.155 <page-range> Page Ranges

Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.156 <part-title> Part Title in a Citation

Title of a *portion* of a larger resource (for example, a chapter in a book, module in a course, episode of a podcast or television series) described in a bibliographic reference.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**

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    - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Element
    - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.157 <patent> Patent Number, Cited

Identification information for a patent in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@country **Country**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.158 <permissions> Permissions

Container element for copyright and license information for the entire article or for the object which contains the <permissions> element.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <copyright-statement> **Copyright Statement**, zero or more
- <copyright-year> **Copyright Year**, zero or more
- <copyright-holder> **Copyright Holder**, zero or more
- Any combination of:

- <ali:free_to_read> **Free to Read (NISO Access and License Indicators)**
- <license> **License Information**

10.4.159 <person-group> Person Group for a Cited Publication

Container element for one or more contributors in a bibliographic reference.

Attributes:

@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@person-group-type **Type of People in the Person Group**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Contributor Naming Elements
  - <anonymous> **Anonymous**
  - <collab> **Collaborative (Group) Author**
  - <collab-alternatives> **Collaboration Alternatives**
  - <name> **Name of Person**
  - <name-alternatives> **Name Alternatives**
  - <string-name> **Name of Person (Unstructured)**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <etal> **Et Al.**
- <role> **Role or Function Title of Contributor**

10.4.160 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.161 <postal-code> Postal Code

A postal number such as a zip-code or postal code used to address physical mail.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.162 <prefix> Prefix

Honorifics or other qualifiers that usually precede a person's name (for example, Professor, Rev., President, Senator, Dr., Sir, The Honorable).

Attributes:

@content-type **Type of Content**

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`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.163 <preformat> Preformatted Text

Text in which spaces, tabs, and line feeds must be preserved. Content is typically displayed in monofont to preserve character alignment.

Attributes:

`@id` **Document Internal Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@preformat-type` **Type of Preformatted Text**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xml:space` **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Ownership Elements
  - <attrib> **Attribution**
  - <permissions> **Permissions**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.164 <price> Price

Sale price or licensing fees of a work.

Attributes:

`@content-type` **Type of Content**
`@currency` **Currency**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**

10.4.165 `<principal-award-recipient>` Principal Award Recipient

Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<contrib-id>` **Contributor Identifier**
- `<name>` **Name of Person**
- `<name-alternatives>` **Name Alternatives**
- `<institution>` **Institution Name: in an Address**
- `<institution-wrap>` **Institution Wrapper**
- `<string-name>` **Name of Person (Unstructured)**

10.4.166 `<principal-investigator>` Principal Investigator

Individual(s) responsible for the intellectual content of the work reported in the document.

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<contrib-id>` **Contributor Identifier**
- `<name>` **Name of Person**
- `<name-alternatives>` **Name Alternatives**
- `<string-name>` **Name of Person (Unstructured)**

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10.4.167 <private-char> Private Character (Custom or Unicode)

Custom character supplied by a publisher, or a custom character from the Unicode private-use area, for which a bitmap or other representation of the glyph is included in or with the XML. The glyph may be represented as an inline graphic, an explicit bitmap glyph, or a reference to a previously defined character.

Attributes:

@description **Description of a Private Character**
@id **Document Internal Identifier**
@name **Name (Private Character)**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any one of:
- Any one of:
  - <glyph-data> **Glyph Data for a Private Character**
  - <glyph-ref> **Glyph Reference for a Private Character**
- <inline-graphic> **Graphic, Inline**, zero or more

10.4.168 <processing-meta> Processing Metadata

Optional container element, used to hold the processing metadata elements, which describe processing information descriptive of the XML-tagged document (document instance).

Attributes:

@base-tagset **Base Tag Set Name**
@id **Document Internal Identifier**
@math-representation **Math Representation in This Document**
@mathml-version **MathML Version**
@table-model **Table Model Used**
@tagset-family **JATS Tag Set Family**
@xml:base **Base**

Content model:

The following, in order:
- <restricted-by> **Restricted-by Model**, zero or more
- <extended-by> **Extended-by Model**, zero or more
- <custom-meta-group> **Custom Metadata Group**, zero or more

10.4.169 <product> Product Information

Container element for the metadata concerning one product (for example, a book, software package, website, or hardware component) discussed in an article.

Attributes:

@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@product-type **Type of Product**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:
- Text, numbers, or special characters

- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <price> **Price**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**

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- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.170 <pub-id> Publication Identifier for a Cited Publication

Identifier of a publication in a bibliographic reference or product description.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@custom-type **Custom Attribute Value Escape Hatch**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters

10.4.171 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <city> **City**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <institution-wrap> **Institution Wrapper**
  - <phone> **Phone Number: in an Address**
  - <postal-code> **Postal Code**
  - <state> **State or Province**

10.4.172 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

10.4.173 <question> Question

A question (request for an answer) used in the text or as part of a quiz, exam, etc.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@question-response-type **Type of Answer(s) to be Given to the Question**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <sec-meta> **Section Metadata**, zero or one
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any one of:
  - <sec> **Section**, one or more
  - The following, in order:
    - One or more of any of:

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- Paragraph-level Display Elements
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <p> **Paragraph**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

▪ <sec> **Section**, zero or more

- <option> **Answer Option (for a question)**, zero or more
- Any combination of:
  - <glossary> **Glossary Elements List**
  - <ref-list> **Reference List (Bibliographic)**

10.4.174 <question-preamble> Question Preamble

An element containing setup/preamble information that is shared by several questions. For example, a <question-preamble> might contain a diagram of a triangle (with several labeled parts) that is shared by questions such as “What is angle 'a'?”, or “Given only the information in the diagram, can you calculate the length of the line from 'b' to 'd'?”.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more
- Any combination of:
  - Paragraph-level Display Elements
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**

        - <fig> **Figure**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <question> **Question**
        - <question-wrap> **Question Wrapper**
        - <question-wrap-group> **Question Wrapper Group**
        - <supplementary-material> **Supplementary Material Metadata**
        - <table-wrap> **Table Wrapper**
      - <disp-formula> **Formula, Display**
      - <disp-formula-group> **Formula, Display Group**
      - Lists
        - <def-list> **Definition List**
        - <list> **List**
      - <p> **Paragraph**
      - <disp-quote> **Quote, Displayed**
      - <speech> **Speech**
      - <statement> **Statement, Formal**
      - <verse-group> **Verse Form for Poetry**
  - <sec> **Section**, zero or more

10.4.175 <question-wrap> Question Wrapper

Wrapper element used to contain a question and its answers and/or explanations concerning the question.

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <question> **Question**
- Optionally any one of:
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
- <explanation> **Explanation**, zero or more

10.4.176 <question-wrap-group> Question Wrapper Group

A container element used to hold a group of <question-wrap> elements, for example, when all the questions share a common preamble (setup).

Attributes:

@audience **Audience for the Question**
@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <object-id> **Object Identifier**, zero or more
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or more
- <alt-title> **Alternate Title**, zero or more

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- <question-preamble> **Question Preamble**, zero or one
- <question-wrap> **Question Wrapper**, one or more

10.4.177 <rb> Ruby Base Text

This element is one half of a Ruby annotation (<ruby>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (<rt>) should be applied.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**

10.4.178 <ref> Reference Item

One item in a bibliographic list.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

One or more of any of:
- Citation Elements
  - <citation-alternatives> **Citation Alternatives**
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**

10.4.179 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

- <ref> **Reference Item**, one or more

10.4.180 <related-article> Related Article Information

Description of a journal article related to the content but published separately. May include a link to the related article.

Attributes:

@elocation-id **Elocation Identifier**
@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@issue **Issue Number of a Related Article**
@journal-id **Journal Identifier of a Related Article**
@journal-id-type **Type of Journal Identifier**
@page **Page of Related Article**
@related-article-type **Type of Related Article**
@specific-use **Specific Use**
@vol **Volume of Related Article**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <journal-id> **Journal Identifier**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**

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- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.181 <related-object> Related Object Information

Description of an object (for example, book, book chapter, figure, or table) related to the article content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Component Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**

@ext-link-type **Type of External Link**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@link-type **Type of Link (for a Related Object)**
@object-id **Object Identifier**
@object-id-type **Object Identifier Type**
@object-type **Object Type**
@source-id **Source Identifier**
@source-id-type **Source Identifier Type**
@source-type **Source Type**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <annotation> **Annotation in a Citation**
- <article-title> **Article Title**
- <chapter-title> **Chapter Title in a Citation**
- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-acronym> **Conference Acronym**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <data-title> **Data Title**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**

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- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- <isbn> **ISBN**
- <issn> **ISSN International Standard Serial Number**
- <issn-l> **ISSN-L (Linking ISSN)**
- <issue> **Issue Number**
- <issue-id> **Issue Identifier**
- <issue-part> **Issue Part**
- <issue-title> **Issue Title**
- <lpage> **Last Page**
- <month> **Month**
- <name> **Name of Person**
- <name-alternatives> **Name Alternatives**
- <object-id> **Object Identifier**
- <page-range> **Page Ranges**
- <part-title> **Part Title in a Citation**
- <patent> **Patent Number, Cited**
- <person-group> **Person Group for a Cited Publication**
- <pub-id> **Publication Identifier for a Cited Publication**
- <publisher-loc> **Publisher's Location**
- <publisher-name> **Publisher's Name**
- <role> **Role or Function Title of Contributor**
- <season> **Season**
- <series> **Series**
- <size> **Size**
- <source> **Source**
- <std> **Standard, Cited**
- <string-date> **Date as a String**
- <string-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <version> **Version Statement**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.182 <resource-group> Resource Group

Container element to hold the descriptions of specific resources supplied in the non-financial support of the work described in this article.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any one of:
- One or more of any of:
  - <resource-name> **Resource Name**
  - <resource-wrap> **Resource Wrap**

10.4.183 <resource-id> Resource Identifier

An external, ideally machine-readable, identifier such as a Research Resource Identifier, for a specific resource provided in support of the work described in this article.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@resource-id-type **Resource Identifier Type**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.184 <resource-name> Resource Name

A displayable name of or description for a specific resource provided in support of the work described in this article.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <fixed-case> **Fixed Case**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.185 <resource-wrap> Resource Wrap

A wrapper element to hold together the name of a resource (<resource-name>) and one or more external identifiers for that resource (<resource-id>) such as a Research Resource Identifier.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

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Content model:

The following, in order:

- <resource-name> **Resource Name**
- <resource-id> **Resource Identifier**, zero or more

10.4.186 <restricted-by> Restricted-by Model

Identification of one of the guidelines or other restrictions (such as a tighter subset schema) the document claims to be following.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@designator **Designator**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.187 <role> Role or Function Title of Contributor

Title or role of a contributor to a work (for example, author, principle investigator, illustrator, research associate, conceptualization).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@degree-contribution **Degree of Contribution**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.188 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.189 <rt> Ruby Textual Annotation

This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be as small as a single character.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

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10.4.190 <ruby> Ruby Annotation Wrapper

An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains some of the document narrative text (inside a Ruby Base <rb> element) and applies/associates a Ruby Textual Annotation (inside an <rt> element to that base text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

The following, in order:
- <rb> **Ruby Base Text**
- <rt> **Ruby Textual Annotation**

10.4.191 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**

- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.192 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

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10.4.193 <season> Season

Season of publication (for example, Spring, Third Quarter).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.194 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:

@id **Document Internal Identifier**
@sec-type **Type of Section**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**
- Any combination of:
  - Paragraph-level Display Elements
    - <answer> **Answer to a Question**
    - <answer-set> **Answer Set**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <code> **Code**
    - <explanation> **Explanation**
    - <fig> **Figure**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <question> **Question**
    - <question-wrap> **Question Wrapper**
    - <question-wrap-group> **Question Wrapper Group**
    - <supplementary-material> **Supplementary Material Metadata**
    - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <p> **Paragraph**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
- <sec> **Section**, zero or more

10.4.195 <sec-meta> Section Metadata

Container element for section-level metadata that is different from the parent document.

Attributes:

@id **Document Internal Identifier**

`@xml:base` **Base**

Content model:

The following, in order:

- `<object-id>` **Object Identifier**, zero or more
- `<contrib-group>` **Contributor Group**, zero or more
- `<abstract>` **Abstract**, zero or more
- `<kwd-group>` **Keyword Group**, zero or more
- `<subj-group>` **Subject Group**, zero or more
- `<permissions>` **Permissions**, zero or one

10.4.196 `<see>` See

Used in an embedded index entry to hold preferred terms that make “See” references in a generated index.

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements

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    - <sub> **Subscript**
    - <sup> **Superscript**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

10.4.197 <see-also> See-Also

Used in an embedded index entry to hold preferred terms that make "See Also" references in a generated index.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Element
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**

    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <array> **Array (Simple Tabulation)**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**

10.4.198 <self-uri> URI for This Same Article Online

URI for another version of a document. This element may be used when the document is available in multiple forms (for example, a printed article and in its expanded version with additional graphics available online).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.199 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**

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    - <ruby> **Ruby Annotation Wrapper**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.200 <size> Size

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@units **Units**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.201 <source> Source

Title of the resource (for example, journal, book, podcast, conference proceedings, radio or TV show) that contains (is the source of) the material being cited in a bibliographic reference or product. In the case of a resource that has titles at multiple hierarchical levels, this is the title of the largest titled resource (e.g., the TV show name and not the episode title).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Element

    - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.202 <speaker> Speaker

One who utters one segment of a speech or dialog.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**

10.4.203 <speech> Speech

One exchange (a single speech) in a real or imaginary conversation between two or more entities.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <speaker> **Speaker**
- <p> **Paragraph**, one or more

10.4.204 <state> State or Province

The name of a state, province, territory, or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, district, or parish. The names for such a unit vary geopolitically.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Text, numbers, or special characters, zero or more

10.4.205 <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one
- One or more of any of:
  - <p> **Paragraph**
  - <statement> **Statement, Formal**
- Any combination of:
  - Ownership Elements
    - <attrib> **Attribution**
    - <permissions> **Permissions**

10.4.206 <std> Standard, Cited

Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <day> **Day**

- <month> **Month**
- <pub-id> **Publication Identifier for a Cited Publication**
- <source> **Source**
- <std-organization> **Standards Organization**
- <year> **Year**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.207 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.208 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**

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    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.209 <string-date> Date as a String

Date represented as text.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <era> **Era of Time**
- <month> **Month**
- <season> **Season**
- <year> **Year**

10.4.210 <string-name> Name of Person (Unstructured)

Container element for personal names captured with mixed-content where the order of the name components is not enforced.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@name-style **Name Style**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**

- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**

10.4.211 <styled-content> Styled Special (Subject) Content

Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace, or any of the other emphasis elements; and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:

@alt **Alternative Text**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@toggle **Toggle Switch**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <explanation> **Explanation**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - <supplementary-material> **Supplementary Material Metadata**
  - <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**

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    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
  - Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
  - <private-char> **Private Character (Custom or Unicode)**
  - Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - Math Element
    - <mml:math> **Math (MathML Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**

10.4.212 <sub> Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**

    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.213 <subj-group> Subject Group

Container element for the subject matter designations describing a document's content or a component document's content. Subjects are used to organize documents into groupings (potentially hierarchical groupings) for display or print.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@subj-group-type **Type of Subject Group**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- One or more of any of:
    - <subject> **Subject Grouping Name**
    - <compound-subject> **Compound Subject Name**
- <subj-group> **Subject Group**, zero or more

10.4.214 <subject> Subject Grouping Name

Name of one subject or topic used to describe an article. Such topics and groupings of topics are typically used to provide headings for groups of documents or document components in a printed, or online, generated Table of Contents.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@id **Document Internal Identifier**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.215 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**

    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Element
    - <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**
- <break> **Line Break**

10.4.216 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.217 <sup> Superscript

Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:

@arrange **Arrangement of Subscripts and Superscripts**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
    - <inline-supplementary-material> **Inline Supplementary Material Metadata**
    - <related-article> **Related Article Information**
    - <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**

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    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
  - <alternatives> **Alternatives For Processing**
  - Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
  - Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <index-term> **Index Term**
    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.218 <supplement> Supplement Information

Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements

- <abbrev> **Abbreviation or Acronym**
- <index-term> **Index Term**
- <index-term-range-end> **Index Term Range End**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- <contrib-group> **Contributor Group**
- <title> **Title**

10.4.219 <supplementary-material> Supplementary Material Metadata

Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

Attributes:

@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@mime-subtype **Mime Subtype**
@mimetype **Mime Type**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- <p> **Paragraph**, zero or more
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.220 <support-description> Support Description

A displayable prose statement that describes some non-financial support given for the research on which a work was based.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**

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`@xml:lang` **Language**

Content model:

Any one of:

- `<p>` **Paragraph**, one or more

10.4.221 `<support-group>` Support Group

Container element for information concerning both funding and non-monetary support for the research reported in the work (typically an article). This includes both monetary awards, grants, investigators, etc. and also facilities, computer resources, data acquisition or donation, and other non-monetary support (including in-kind support).

Attributes:

`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<funding-group>` **Funding Group**, zero or more
- `<contributed-resource-group>` **Contributed Resource Group**, zero or more

10.4.222 `<support-source>` Support Source

Agency or organization (such as a foundation, corporation, or an educational institution) that provided non-monetary support (such as facilities or data) in support of the research on which a work was based.

Attributes:

`@country` **Country**
`@hreflang` **Language of the Link Target**
`@id` **Document Internal Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@support-type` **Type of Support Provided**
`@xlink:actuate` **Actuating the Link**
`@xlink:href` **Href (Linking Mechanism)**
`@xlink:role` **Role of the Link**
`@xlink:show` **Showing the Link**
`@xlink:title` **Title of the Link**
`@xlink:type` **Type of Link**
`@xml:base` **Base**
`@xml:lang` **Language**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements

- ◦ <inline-graphic> **Graphic, Inline**
- ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <institution> **Institution Name: in an Address**
- <institution-wrap> **Institution Wrapper**

10.4.223 <surname> Surname

Surname of a person.

Attributes:

@id **Document Internal Identifier**
@initials **Initials for Personal Names**
@xml:base **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.224 <table> Table (NISO JATS table model)

The rows and columns part of a full table. (This element is based on and intended to be converted easily to the XHTML table element.)

Attributes:

@border **Border (Frame) around a Table (NISO JATS table model)**
@cellpadding **Cell Padding (NISO JATS table model)**
@cellspacing **Cell Spacing (NISO JATS table model)**
@content-type **Type of Content**
@frame **Frame (NISO JATS table model)**
@id **Document Internal Identifier**
@rules **Rules (NISO JATS table model)**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@summary **Summary (NISO JATS table model)**
@width **Width (NISO JATS table model)**
@xml:base **Base**

Content model:

The following, in order:
- Any one of:
  - ◦ <col> **Table Column (NISO JATS table model)**, zero or more
  - ◦ <colgroup> **Table Column Group (NISO JATS table model)**, zero or more
- Any one of:
  - ◦ The following, in order:
    - ▪ <thead> **Table Header (NISO JATS table model)**, zero or one
    - ▪ <tfoot> **Table Footer (NISO JATS table model)**, zero or one
    - ▪ <tbody> **Table Body (NISO JATS table model)**, one or more
  - ◦ <tr> **Table Row (NISO JATS table model)**, one or more

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10.4.225 <table-wrap> Table Wrapper

Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or more
- <caption> **Caption of a Figure, Table, etc.**, zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> **Alternate Text Name (for a figure, etc.)**
    - <long-desc> **Long Description**
- Any combination of:
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**
  - <alternatives> **Alternatives For Processing**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <code> **Code**
  - <disp-formula> **Formula, Display**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <table> **Table (NISO JATS table model)**
  - <xref> **X (cross) Reference**
- <table-wrap-foot> **Table Wrapper Footer**, zero or one
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.226 <table-wrap-foot> Table Wrapper Footer

Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <title> **Title**, zero or one
- One or more of any of:
  - <p> **Paragraph**
  - <fn-group> **Footnote Group**
  - <fn> **Footnote**
  - Ownership Elements
    - <attrib> **Attribution**

- <permissions> **Permissions**

10.4.227 <target> Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@target-type **Type of Target**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.228 <tbody> Table Body (NISO JATS table model)

Container element that holds the rows and columns in one of the *body* (as opposed to the *header*) portions of a table.

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

10.4.229 <td> Table Data Cell (NISO JATS table model)

One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML td element.)

Attributes:

@abbr **Abbreviation (NISO JATS table model)**
@align **Horizontal Alignment (NISO JATS table model)**
@axis **Axis (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@colspan **Column Span (NISO JATS table model)**

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`@content-type` **Type of Content**
`@headers` **Headers (NISO JATS table model)**
`@id` **Document Internal Identifier**
`@rowspan` **Row Span (NISO JATS table model)**
`@scope` **Scope (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<hr>` **Horizontal Rule**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<disp-formula>` **Formula, Display**
- `<disp-formula-group>` **Formula, Display Group**
- `<break>` **Line Break**
- Citation Elements
  - `<citation-alternatives>` **Citation Alternatives**
  - `<element-citation>` **Element Citation**
  - `<mixed-citation>` **Mixed Citation**
  - `<nlm-citation>` **NLM Citation**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- `<private-char>` **Private Character (Custom or Unicode)**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- `<disp-quote>` **Quote, Displayed**
- `<speech>` **Speech**
- `<statement>` **Statement, Formal**
- `<verse-group>` **Verse Form for Poetry**
- Lists
  - `<def-list>` **Definition List**
  - `<list>` **List**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- `<p>` **Paragraph**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**

    - <index-term-range-end> **Index Term Range End**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <code> **Code**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <answer> **Answer to a Question**
  - <answer-set> **Answer Set**
  - <explanation> **Explanation**
  - <question> **Question**
  - <question-wrap> **Question Wrapper**
  - <question-wrap-group> **Question Wrapper Group**
  - Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
  - Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.230 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

Attributes:

@id **Document Internal Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@term-status **Term Status**
@term-type **Type of Term**
@vocab **Vocabulary/Taxonomy Name**
@vocab-identifier **Vocabulary/Taxonomy Identifier**
@vocab-term **Vocabulary/Taxonomy Term**
@vocab-term-identifier **Vocabulary/Taxonomy Term Identifier**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - <related-article> **Related Article Information**
  - <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**

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- ◦ <strike> **Strike Through**
- ◦ <underline> **Underline**
- ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.231 <term-head> Definition List: Term Head

Heading over the first column (the term column) of a definition list (two-part list).

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Element
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**

- ◦ <index-term> **Index Term**
- ◦ <index-term-range-end> **Index Term Range End**
- ◦ <named-content> **Named Special (Subject) Content**
- ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.232 <textual-form> Textual Form

Textual form provides a place to hold a textual equivalent or searchable textual version of a complex structure such as an equation or a graphical object. The complex object and the textual equivalent are associated with each other by putting them in the same alternatives wrapper.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Math Element
  - ◦ <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.233 <tfoot> Table Footer (NISO JATS table model)

The footer rows and columns within a NISO JATS table. (This element is based on and intended to be converted easily to the XHTML tfoot element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**

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`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@xml:base` **Base**

Content model:

`<tr>` **Table Row (NISO JATS table model)**, one or more

10.4.234 `<th>` Table Header Cell (NISO JATS table model)

One cell in the table header, as opposed to an ordinary cell in the body of a table. (This element is based on and intended to be converted easily to the XHTML `th` element.)

Attributes:

`@abbr` **Abbreviation (NISO JATS table model)**
`@align` **Horizontal Alignment (NISO JATS table model)**
`@axis` **Axis (NISO JATS table model)**
`@char` **Table Cell Alignment Character (NISO JATS table model)**
`@charoff` **Table Character Offset (NISO JATS table model)**
`@colspan` **Column Span (NISO JATS table model)**
`@content-type` **Type of Content**
`@headers` **Headers (NISO JATS table model)**
`@id` **Document Internal Identifier**
`@rowspan` **Row Span (NISO JATS table model)**
`@scope` **Scope (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<hr>` **Horizontal Rule**
- Related Material Elements
  - `<inline-supplementary-material>` **Inline Supplementary Material Metadata**
  - `<related-article>` **Related Article Information**
  - `<related-object>` **Related Object Information**
- `<disp-formula>` **Formula, Display**
- `<disp-formula-group>` **Formula, Display Group**
- `<break>` **Line Break**
- Citation Elements
  - `<citation-alternatives>` **Citation Alternatives**
  - `<element-citation>` **Element Citation**
  - `<mixed-citation>` **Mixed Citation**
  - `<nlm-citation>` **NLM Citation**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**

- ◦ <inline-media> **Inline Media Object**
- <private-char> **Private Character (Custom or Unicode)**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- Lists
  - ◦ <def-list> **Definition List**
  - ◦ <list> **List**
- Math Element
  - ◦ <mml:math> **Math (MathML Tag Set)**
- <p> **Paragraph**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- <code> **Code**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <answer> **Answer to a Question**
- <answer-set> **Answer Set**
- <explanation> **Explanation**
- <question> **Question**
- <question-wrap> **Question Wrapper**
- <question-wrap-group> **Question Wrapper Group**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**

10.4.235 <thead> Table Header (NISO JATS table model)

Container element for the table header rows of a table. (This element is based on and intended to be converted easily to the XHTML thead element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

10.4.236 <time-stamp> Time Stamp for Cited Work

This element is deprecated. Avoid using it; use <date-in-citation>.

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Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Text, numbers, or special characters, zero or more

10.4.237 `<title>` Title

Heading or title for a structural element (for example, `<sec>`, `<app>`, `<boxed-text>`).

Attributes:

`@content-type` **Type of Content**
`@id` **Document Internal Identifier**
`@specific-use` **Specific Use**
`@xml:base` **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<fixed-case>` **Fixed Case**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
  - `<ruby>` **Ruby Annotation Wrapper**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<inline-media>` **Inline Media Object**
- Inline Math Elements
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<inline-formula>` **Formula, Inline**
- Math Element
  - `<mml:math>` **Math (MathML Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<index-term>` **Index Term**
  - `<index-term-range-end>` **Index Term Range End**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- Internal Linking Elements
  - `<fn>` **Footnote**
  - `<target>` **Target of an Internal Link**
  - `<xref>` **X (cross) Reference**
- Baseline Change Elements
  - `<sub>` **Subscript**
  - `<sup>` **Superscript**
- `<break>` **Line Break**
- Citation Elements

- ◦ <citation-alternatives> **Citation Alternatives**
- ◦ <element-citation> **Element Citation**
- ◦ <mixed-citation> **Mixed Citation**
- ◦ <nlm-citation> **NLM Citation**

10.4.238 <title-group> Title Group

Container element to hold the various titles for a document or a document component.

Attributes:

@id **Document Internal Identifier**
@xml:base **Base**

Content model:

The following, in order:

- <article-title> **Article Title**
- <subtitle> **Document Subtitle**, zero or one

10.4.239 <tr> Table Row (NISO JATS table model)

Container element for all the cells in a single table row. (This element is based on and intended to be converted easily to the XHTML tr element.)

Attributes:

@align **Horizontal Alignment (NISO JATS table model)**
@char **Table Cell Alignment Character (NISO JATS table model)**
@charoff **Table Character Offset (NISO JATS table model)**
@content-type **Type of Content**
@id **Document Internal Identifier**
@style **Style (NISO JATS table model; MathML Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@xml:base **Base**

Content model:

One or more of any of:

- <th> **Table Header Cell (NISO JATS table model)**
- <td> **Table Data Cell (NISO JATS table model)**

10.4.240 <trans-source> Translated Source

Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <abbrev> **Abbreviation or Acronym**
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**

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    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <inline-media> **Inline Media Object**
- Inline Math Elements
    - <chem-struct> **Chemical Structure (Display)**
    - <inline-formula> **Formula, Inline**
- Math Element
    - <mml:math> **Math (MathML Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
    - <fn> **Footnote**
    - <target> **Target of an Internal Link**
    - <xref> **X (cross) Reference**
- Baseline Change Elements
    - <sub> **Subscript**
    - <sup> **Superscript**

10.4.241 <trans-title> Translated Title

Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
- Emphasis Elements
    - <bold> **Bold**
    - <fixed-case> **Fixed Case**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements

- ◦ <inline-graphic> **Graphic, Inline**
- ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**
- Math Element
  - ◦ <mml:math> **Math (MathML Tag Set)**
- Other Inline Elements
  - ◦ <abbrev> **Abbreviation or Acronym**
  - ◦ <index-term> **Index Term**
  - ◦ <index-term-range-end> **Index Term Range End**
  - ◦ <named-content> **Named Special (Subject) Content**
  - ◦ <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - ◦ <fn> **Footnote**
  - ◦ <target> **Target of an Internal Link**
  - ◦ <xref> **X (cross) Reference**
- Baseline Change Elements
  - ◦ <sub> **Subscript**
  - ◦ <sup> **Superscript**
- <break> **Line Break**

10.4.242 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@id **Document Internal Identifier**
@specific-use **Specific Use**
@toggle **Toggle Switch**
@xml:base **Base**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - ◦ <email> **Email Address**
  - ◦ <ext-link> **External Link**
  - ◦ <uri> **Uniform Resource Identifier (URI)**
- Related Material Elements
  - ◦ <inline-supplementary-material> **Inline Supplementary Material Metadata**
  - ◦ <related-article> **Related Article Information**
  - ◦ <related-object> **Related Object Information**
- Emphasis Elements
  - ◦ <bold> **Bold**
  - ◦ <fixed-case> **Fixed Case**
  - ◦ <italic> **Italic**
  - ◦ <monospace> **Monospace Text (Typewriter Text)**
  - ◦ <overline> **Overline**
  - ◦ <roman> **Roman**
  - ◦ <sans-serif> **Sans Serif**
  - ◦ <sc> **Small Caps**
  - ◦ <strike> **Strike Through**
  - ◦ <underline> **Underline**
  - ◦ <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - ◦ <inline-graphic> **Graphic, Inline**
  - ◦ <inline-media> **Inline Media Object**
- Inline Math Elements
  - ◦ <chem-struct> **Chemical Structure (Display)**
  - ◦ <inline-formula> **Formula, Inline**

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- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.243 <uri> Uniform Resource Identifier (URI)

Identifies a Uniform Resource Identifier (such as a URL) that may be used as a live link, typically naming a website (such as: <uri>https://www.mulberrytech.com</uri>).

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.244 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <subtitle> **Document Subtitle**, zero or one
- <verse-line> **Line of a Verse**, one or more
- Ownership Elements
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.245 <verse-line> Line of a Verse

One line of a poem or verse.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@indent-level **Indentation Level**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML Tag Set)**
@style-detail **Styling Detail**
@style-type **Style Type**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <inline-media> **Inline Media Object**
- Inline Math Elements
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <index-term> **Index Term**
  - <index-term-range-end> **Index Term Range End**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**
- Internal Linking Elements
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**

10.4.246 <version> Version Statement

A full version statement, which may be only a number, for data or software that is cited or described.

Attributes:

@content-type **Type of Content**
@designator **Designator**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.247 <volume> Volume Number

Number of a journal (or other document) within a series.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@seq **Sequence**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.248 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

@assigning-authority **Authority Responsible for an Identifier**
@content-type **Type of Content**
@hreflang **Language of the Link Target**
@id **Document Internal Identifier**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xlink:actuate **Actuating the Link**
@xlink:href **Href (Linking Mechanism)**
@xlink:role **Role of the Link**
@xlink:show **Showing the Link**
@xlink:title **Title of the Link**
@xlink:type **Type of Link**
@xml:base **Base**
@xml:lang **Language**
@xmlns:xlink **XLink Namespace Declaration**

Content model:

Text, numbers, or special characters, zero or more

10.4.249 <volume-series> Volume Series

Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

Attributes:

@content-type **Type of Content**
@id **Document Internal Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.250 <xref> X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

@alt **Alternative Text**
@custom-type **Custom Attribute Value Escape Hatch**
@id **Document Internal Identifier**
@ref-type **Type of Cross-Reference**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <fixed-case> **Fixed Case**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
  - <ruby> **Ruby Annotation Wrapper**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- Baseline Change Elements
  - <sub> **Subscript**
  - <sup> **Superscript**

10.4.251 <year> Year

Representation, usually numerical, of a calendar year.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@id **Document Internal Identifier**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:base **Base**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.5 Attributes

Each attribute in the Tag Set is listed and identified, and specifics of the model of the attribute in this Tag Set are provided.

Each attribute is identified with a name, expanded information name, and definition, as it is listed in Section 7, *Tag Suite Components*. For some attributes a "Usage" section provides additional information on how the attribute is intended to be used or interpreted.

Following that appears the modeling information specific to this Tag Set. For attributes that are associated with only one element, or for which the usage is the same for all elements in the Tag Set, there appears:

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- a list of all of the elements associated with the attribute;
- an optionality description:
  - "this attribute may be used if the element is used" means the attribute is optional;
  - "this attribute must be used if the element is used" means the attribute is required;
  - "this attribute must have the value …" means that the attribute has a fixed value.
- a table showing the allowed value(s) of the attribute and describing the meaning of each value. If there is a default value, that value appears in bold.

If there is more than one element associated with an attribute in the Tag Set and those elements use the attribute differently (for example, one element provides a default value for the attribute and on other elements there is no default value), the specifics are repeated for each group of elements that has the same usage and values for the attribute.

10.5.1 `@abbr` Abbreviation (NISO JATS table model)

An abbreviated version of the cell's content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell's header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHTML `abbr` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A brief note of what is in the cell, mostly for use by accessibility software.

10.5.2 `@abstract-type` Type of Abstract

Type or style of abstract as identified by the publisher (for example, "`short`", "`graphic`", "`ASCII`", "`stereochemical`").

In element `<abstract>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Brief name for the type of abstract, such as "`short`".

10.5.3 `@align` Horizontal Alignment (NISO JATS table model)

Sets the horizontal (line) alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `align` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
center	Center align the cell contents.
char	Align the text on the character identified with the `@char` attribute.
justify	Fully justify cell contents (right and left justification).
left	Left justify cell contents.
right	Right justify cell contents.

10.5.4 `@alt` Alternative Text

Word or phrase that serves as a textual alternative for the element.

In elements <abbrev>, <label>, <named-content>, <styled-content>, and <xref>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Simple words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

10.5.5 @alt-title-type Type of Alternate Title

Reason for or purpose of an alternate title (for example, "toc" for a title used in a Table of Contents, "rt-running" for a right-running-head title for print).

In element <alt-title>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase describing the rationale for this version of the title, for example, "right-running-head".

10.5.6 @arrange Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts and superscripts applying to the same character should stack (be placed one above the other as compactly as possible) or stagger (be stretched out in a line).

In elements <sub> and <sup>, this attribute *may* be used if the element is used.

Value	Meaning
stack	The multiple subscripts and superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts and superscripts should be stretched out in a line.

10.5.7 @article-type Type of Article

Type or kind of article (for example, "research", "commentary", "review", "case", or "calendar").

In element <article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of article,for example, "research-article".

10.5.8 @article-version-type Type of the Article Version Statement

This @article-version-type identifies the type of information contained in the <article-version> element.

In element <article-version>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of version number or version status identifier that identifies this version of the article.

10.5.9 @assigning-authority Authority Responsible for an Identifier

Names the authority that assigned or administers an identifier used in this document, for example, Crossref, GenBank, or PDB.

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In elements <article-version>, <award-id>, <compound-kwd>, <compound-subject>, <contrib-id>, <custom-meta>, <ext-link>, <extended-by>, <institution-id>, <isbn>, <issn>, <issn-l>, <issue-id>, <journal-id>, <kwd>, <kwd-group>, <nested-kwd>, <object-id>, <pub-id>, <resource-id>, <restricted-by>, <role>, <self-uri>, <subj-group>, <subject>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name of the organization assigning the identifier, such as "ORCID" or "ISNI"

10.5.10 @audience Audience for the Question

Names the perspective audience for the question(s).

In elements <question-wrap> and <question-wrap-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Short description of the intended audience, for example, "patients", "dermatology-students".

10.5.11 @authenticated Authenticated

The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.

In element <contrib-id>, this attribute will be assigned the value false by default.

Value	Meaning
true	This contributor identifier has been marked by the issuing authority as authenticated.
false	No guarantee has been made about this contributor identifier.

10.5.12 @award-id-type Type of Identifier for an Award

Type of or name for an institutional identifier for the <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

In element <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of or name for an institutional identifier for the element <award-id> element, in cases where a type system is being used to identify awards, for example, a DOI.

10.5.13 @award-type Type of Award

Type or kind of award (for example, "grant" or "contract").

In elements <award-group> and <award-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of award, such as "contract" or "grant".

10.5.14 @axis Axis (NISO JATS table model)

A method of categorizing table cells. The value of this attribute should be one or more category names. (This attribute is based on and intended to be converted easily to the XHTML axis attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the conceptual axis or a comma-separated list of axis names.

10.5.15 @base-tagset Base Tag Set Name

Which of the JATS standard tag sets is the basis for this document?

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
archiving	Journal Archiving and Interchange Tag Set (Green)
authoring	Article Authoring Tag Set (Pumpkin)
publishing	Journal Publishing Tag Set (Blue)

10.5.16 @baseline-shift Baseline Shift

The position of an inline graphic with respect to the current text baseline (above, on, or below the baseline).

In element <inline-graphic>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the position of the inline graphic.

10.5.17 @border Border (Frame) around a Table (NISO JATS table model)

Thickness, in pixels, of the border to draw around the table. A value of "0" indicates that the table has no border. (This attribute is based on and intended to be converted easily to the XHTML border attribute.)

In element <table>, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the border around the table.

10.5.18 @calendar Calendar

Name of the calendar used in naming a date such as a publication date, for example, "Gregorian", "Japanese" (Emperor years), or "Thai Buddha".

In elements <access-date>, <conf-date>, <date>, <date-in-citation>, <string-date>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name of the calendar used in the date, for example, "Gregorian".

10.5.19 @cellpadding Cell Padding (NISO JATS table model)

Amount of space, measured in pixels, between the border of a cell and the contents of a table cell. (This attribute is based on and intended to be converted easily to the XHTML cellpadding attribute.)

In element <table>, this attribute *may* be used if the element is used.

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Value	Meaning
Counting number	Thickness, measured in pixels, of the cell padding.

10.5.20 `@cellspacing` Cell Spacing (NISO JATS table model)

Width of space between cells in a table. (This attribute is based on and intended to be converted easily to the XHTML `cellspacing` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Counting number	Thickness, measured in pixels, of the space between cells in a table.

10.5.21 `@char` Table Cell Alignment Character (NISO JATS table model)

The character to be used in horizontal alignment of the contents of an entry in a table. The content of a table data or table header element is to be aligned horizontally based on the character named in this attribute, for example, alignment on a period for decimal alignment or on an equal sign for alignment of variables. (This attribute is based on and intended to be converted easily to the XHTML `char` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	When used in conjunction with `align="char"`, the contents of the table entry are aligned relative to the character specified by this attribute.

10.5.22 `@charoff` Table Character Offset (NISO JATS table model)

Horizontal offset from the alignment character specified by the `@char` attribute; the percent of the current column width to the left of the (left edge of the) alignment character. (This attribute is based on and intended to be converted easily to the XHTML `charoff` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	Where to set the alignment. Although this Tag Set can enforce only that this attribute contain any characters, validation beyond the DTD (for example, schema validation or Schematron validation) can constrain this value to a counting number (positive integer).

10.5.23 `@code-type` Type of Code

The type of this code, used to categorize or describe the code.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.

10.5.24 `@code-version` Code Version

Version of this program or code fragment.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Version of the program (code) that is shown inside the <code> element, for example, "25.1 second patch".

10.5.25 @collab-type Type of Collaboration

Type or role of the collaborators; what function they played in the publication (for example, "translators", "editors").

In element <collab>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that describes the role that the collaborators played in the publication, for example, "authors".

10.5.26 @colspan Column Span (NISO JATS table model)

Table attribute used to request horizontal spanning of more than one column. (This attribute is based on and intended to be converted easily to the XHTML colspan attribute.)

In elements <td> and <th>, this attribute will be assigned the value 1 by default.

Value	Meaning
Counting number	How many column widths this cell will span, for example, "3".

10.5.27 @content-type Type of Content

Subject or type of content that makes this element semantically distinct.

In element <contrib-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the shared role for the contributors within the <contrib-group> element (in the same way that the attribute @contrib-type does for a single contributor>).

In element <role>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes a distinct semantic role of the contributor (person or collaboration) in the research behind the article or in the article itself. If the contributor played more than one role in the creation of an article, the <role> element should be repeated with a different value for this attribute.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	May be used to name stages in the lifecycle of a related object such as a book, with values such as "preprint" and "version-of-record".

In element <named-content>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the semantic function for the particular <named-content> element. These elements mark up material that cannot otherwise be described semantically by the elements in this Suite. For example, a medical article might use a @content-type value "body-system" or "gene" while a management article might use a @content-type value "product-name" or "stock-code".

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In elements <abbrev>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <annotation>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article-version>, <author-comment>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <city>, <col>, <colgroup>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib-id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <country>, <custom-meta-group>, <data-title>, <date-in-citation>, <day>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <elocation-id>, <email>, <era>, <explanation>, <fax>, <fixed-case>, <fn-group>, <fpage>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <isbn>, <issn>, <issue>, <issue-id>, <issue-part>, <issue-title>, <kwd>, <license-p>, <long-desc>, <lpage>, <media>, <month>, <name>, <nested-kwd>, <object-id>, <option>, <p>, <page-range>, <patent>, <phone>, <postal-code>, <prefix>, <price>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <resource-id>, <resource-name>, <rt>, <ruby>, <season>, <see>, <see-also>, <self-uri>, <series>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-date>, <string-name>, <subject>, <subtitle>, <suffix>, <supplementary-material>, <table>, <table-wrap>, <tbody>, <td>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <tr>, <trans-source>, <trans-title>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes any distinct semantics of the associated element. This may be used to preserve the semantic intent of prior tagging, for example, to record that a table cell was a total or subtotal amount. This may also be used to attach information classes to an element for retrieval purposes.

10.5.28 `@continued-from` Continued From

`ID` of a list which the current list continues; used to connect discontiguous lists that form one logical list.

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

10.5.29 `@contrib-id-type` Contributor Identifier Type

Names the type of contributor identifier, such as an ORCID or a ScopusID.

In element <contrib-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of contributor identifier or the authority (such as a publisher or industry organization) that is responsible for the creation of the contributor identifier, for example, "`ORCID`" or "`JST`".

10.5.30 `@contrib-type` Type of Contribution

Type of contribution made by the individual (for example, "`author`", "`editor`", "`translator`", "`research-assistant`").

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase naming or describing the contribution, such as "author".

10.5.31 @correct Correct Option Flag

Marks a multiple-choice option as correct or incorrect.

In element <option>, this attribute *may* be used if the element is used.

Value	Meaning
no	This answer is incorrect.
yes	This answer is correct.

10.5.32 @corresp Corresponding Author

Indicates whether or not the contributor is the corresponding contributor for the content.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	This author (or other contributor) is not a corresponding author.
yes	This author (or other contributor) is a corresponding author.

10.5.33 @count Count

Number of specific objects that appear in the document.

In element <page-count>, this attribute *must* be used if the element is used.

Value	Meaning
Counting number	The number of pages being counted, for example, "5".

10.5.34 @country Country

An abbreviation or code that names a country. This is information that can be used to identify a country that granted a patent or to provide a machine-comparable form of the name of a country as an addition to the content of the <country> element.

In elements <country>, <funding-source>, <patent>, and <support-source>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a country, typically using the ISO 3166-1 two-letter alphabetic codes, for example, "US" for the United States of America.

10.5.35 @currency Currency

Type of currency in which the price is presented.

In element <price>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An abbreviation for a currency, typically using the ISO 4217 three-letter alphabetic codes, for example, "USD" for the United States Dollar.

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10.5.36 `@custom-type` Custom Attribute Value Escape Hatch

Used in the same attribute list as an attribute with a set list of values, to provide a way for the content creator to say "my attribute value is not on the set list".

In elements <fn>, <person-group>, <pub-id>, and <xref>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The value of the type attribute for this element, when that value is not found in a set list of values.

10.5.37 `@date-type` Type of Date

Event in the lifecycle of an object that this date is marking (for example, for an article, dates such as the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In element <date>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a word or phrase that names or describes the purpose of a date, in this case, the publication date (`pub-date`) of a cited reference.

10.5.38 `@deceased` Deceased

Indicates whether or not the contributor described in the element was deceased when the document or document component was published.

In element <contrib>, this attribute *may* be used if the element is used.

Value	Meaning
no	The contributor was living when the document was published.
yes	The contributor had died by the time the document was published.

10.5.39 `@degree-contribution` Degree of Contribution

Indicates the level of contribution for this contributor, such as "`Lead`" or "`Supporting`".

In element <role>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The degree of contribution, for example, "`Lead`" or "`Equal`".

10.5.40 `@description` Description of a Private Character

Human-readable description of a defined private character (for example, "`Arrow, normal weight, single line, two-headed, Northwest to Southeast`").

In element <private-char>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A rough visual description of the appearance of the <private-char> character, for example, "`Greek capital letter omega with tonos`".

10.5.41 `@designator` Designator

Used on such elements as edition number (`<edition>`) and version (`<version>`) to hold an unadorned numeric or alphabetic value of the edition or version number for machine search, when the number is a phrase or textual value.

In elements `<article-version>`, `<edition>`, `<extended-by>`, `<restricted-by>`, and `<version>`, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character(s) that indicates the version number, edition number, etc.	The unadorned number that indicates the simple, machine-processable value of the element's content. Typically this is a number such as "`4`" or an alphabetic character such as "`A`", while the element content may contain ordinals or other text.

10.5.42 `@document-id` Document Component Identifier

Identifier of a major document component within a publication that is (or contains) the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier for the document that contains the related object (`<related-object>`).

10.5.43 `@document-id-type` Document Identifier Type

Type of document identifier (for example, a DOI or a publisher's identifier) named in the `@document-id` attribute of the `<related-object>` element to identify a document, for example, "`doi`".

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
The type of document identifier of the related object, for example, a DOI (doi).	Names/describes the type of document identifier for the `@document-id` attribute named in a `<related-object>` element. This attribute qualifies the `@document-id` attribute.

10.5.44 `@document-type` Document Type

The "document" is the part of the source that is typically delivered when a user follows the link to a `<related-object>`. This attribute names/describes what that document is.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of document being returned by the **Related Object Information** element, for example, a chapter, appendix, or reference list.

10.5.45 `@dtd-version` Version of the Tag Set (DTD)

Version of the Tag Set to which this document claims to be valid.

In element `<article>`, this attribute *may* be used if the element is used.

Value	Meaning
1.3	Version 1.3 of JATS, an ANSI/NISO standard

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Value	Meaning
1.3d2	Version 1.3d2 (Version 1.2 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.3d1	Version 1.3d1 (Version 1.2 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.3)
1.2	Version 1.2 of JATS, an ANSI/NISO standard
1.2d2	Version 1.2d2 (Version 1.1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.2d1	Version 1.2d1 (Version 1.1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.2)
1.1	Version 1.1 of JATS, an ANSI/NISO standard
1.1d3	Version 1.1d3 (Version 1 Committee Draft 3 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d2	Version 1.1d2 (Version 1 Committee Draft 2 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.1d1	Version 1.1d1 (Version 1 Committee Draft 1 of JATS, a non-standard Committee Draft of JATS, prior to JATS version 1.1)
1.0	Version 1.0 of JATS, the first ANSI/NISO standard
0.4	Version 0.4 of JATS, the first version made publicly available. JATS was not yet an ANSI/NISO standard
3.0	NLM DTD 3.0 (last NLM DTD version before JATS)

10.5.46 `@elocation-id` Elocation Identifier

Bibliographic identifier for a related article that does not have traditional printed page numbers.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The value of the elocation identifier.

10.5.47 `@end_date` End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In element `<ali:free_to_read>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.

10.5.48 `@equal-contrib` Equal Contribution

Indicates whether or not all contributors contributed equally.

In element `<contrib>`, this attribute *may* be used if the element is used.

Value	Meaning
no	This contributor did not participate equally with all other contributors.
yes	This contributor participated equally with all other contributors.

10.5.49 `@executable` Executable

Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
no	The code cannot or should not be executed.
yes	The code is intended to be run.

10.5.50 `@ext-link-type` Type of External Link

Type of external link; may include a specific source (for example, "pdb", "pir"), identifier type (for example, "doi", "aoi"), or access method (for example, "ftp", "uri").

In elements <ext-link>, <related-article>, and <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of link, for example, "doi", "aoi" or "ftp".

10.5.51 `@fig-type` Type of Figure

Type or format of the figure (for example, "cartoon", "chart", "diagram", "map", "plate", "workflow").

In element <fig>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of object shown in the figure, for example, "diagram", "chart", or "map".

10.5.52 `@fn-type` Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

In element <fn>, this attribute *may* be used if the element is used.

Value	Meaning
abbr	Abbreviations.
com	Communicated-by information.
con	Contributed-by information.
coi-statement	Term for Conflict of Interest statements.
conflict	Older term for Conflict of Interest statements. "coi-statement" is now a JATS4R recommendation.
corresp	Corresponding author information not identified separately, but merely footnoted.
current-aff	Contributor's current affiliation.
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute @custom-type.
deceased	Person has died since article was written.
edited-by	Contributor has the role of an editor.
equal	Contributed equally to the creation of the document.

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Value	Meaning
financial-disclosure	Statement of funding or denial of funds received in support of the research on which an article is based.
on-leave	Contributor is on sabbatical or other leave of absence.
other	Some footnote type, other than those enumerated. To name the type, use the value "custom" and then the attribute @custom-type rather than this value "other".
participating-researchers	Contributor was a researcher for an article.
present-address	Contributor's current address.
presented-at	Conference, colloquium, or other occasion at which this paper was presented.
presented-by	Contributor who presented the material.
previously-at	Contributor's previous location or affiliation.
study-group-members	Contributor was a member of the study group for the research.
supplementary-material	Points to or describes supplementary material for the article.
supported-by	Research upon which an article is based was supported by some entity.

10.5.53 @fontchar Font Character Table Offset

Offset of the character into a glyph table, such as a Unicode character.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The offset of the character into a glyph table.

10.5.54 @fontname Font Name

Name of the font.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A name for the font.

10.5.55 @format Format

Name of the image format for the bitmap that is provided with a <glyph-data> element. (The <glyph-data> element is used to define a private use character when the <private-char> contains a bitmap.)

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A word	A word naming the format of the bitmap. The word may not contain any spaces, and the characters of the word are limited to letters, numbers, and these special characters: period, hyphen, underscore, and colon.

10.5.56 @frame Frame (NISO JATS table model)

Specifies which sides of the table should be given rules, making a box or frame of lines around the table. (This attribute is based on and intended to be converted easily to the XHTML frame attribute.)

In element <table>, this attribute *may* be used if the element is used.

Value	Meaning
above	Rule above only (top).
below	Rule below only (bottom).
border	Rules on all table rows and columns.
box	Rules on all 4 sides.
hsides	Rules on horizontal sides only (topbot).
lhs	Left-side rule only.
rhs	Right-side rule only.
void	No border (none).
vsides	Rules on vertical sides only (sides).

10.5.57 `@glyph-data` Glyph Data Character Being Referenced

An `IDREF`-type attribute that points to the `@id` attribute of the `<glyph-data>` character inside a `<private-char>` element. The idea is to use the full `<glyph-data>` with its name and bitmap once, then point to an existing character instead of defining the entire `<glyph-data>` element repeatedly.

In element `<glyph-ref>`, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	The pointing uses the `ID/IDREF` mechanism, using the `@glyph-data` attribute of the `<glyph-ref>` element to point to the `@id` attribute of an existing `<glyph-data>` element.

10.5.58 `@headers` Headers (NISO JATS table model)

List of `@id`s of the table header (`<th>`) or the table data (`<td>`) cells that provide header information for this cell. (This attribute is based on and intended to be converted easily to the XHTML `headers` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Contains a list of one or more `ID`s of the table header (`<th>`) or table data (`<td>`) cells that are acting as the header for the current cell.

10.5.59 `@hreflang` Language of the Link Target

Language of the target to which a link is pointing. A processor following the link would expect to find a document in the language named.

In elements `<abbrev>`, `<article-version>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<extended-by>`, `<funding-source>`, `<graphic>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<resource-name>`, `<restricted-by>`, `<self-uri>`, `<supplementary-material>`, `<support-source>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "`en`" for English or "`de`" for German) or for a language and a script ("`ja-Kana`").

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10.5.60 `@id` Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In element `<target>`, this attribute *must* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid `ID`.

In elements `<abbrev>`, `<abstract>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<aff-alternatives>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<alt-title>`, `<alternatives>`, `<annotation>`, `<anonymous>`, `<answer>`, `<answer-set>`, `<app>`, `<app-group>`, `<array>`, `<article>`, `<article-meta>`, `<article-title>`, `<article-version>`, `<attrib>`, `<author-comment>`, `<award-desc>`, `<award-group>`, `<award-id>`, `<award-name>`, `<back>`, `<bio>`, `<body>`, `<bold>`, `<boxed-text>`, `<break>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<citation-alternatives>`, `<city>`, `<code>`, `<col>`, `<colgroup>`, `<collab>`, `<collab-alternatives>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<compound-subject>`, `<compound-subject-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib>`, `<contrib-group>`, `<contrib-id>`, `<contributed-resource-group>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<country>`, `<custom-meta>`, `<custom-meta-group>`, `<data-title>`, `<date>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-head>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elocation-id>`, `<email>`, `<era>`, `<etal>`, `<explanation>`, `<ext-link>`, `<extended-by>`, `<fax>`, `<fig>`, `<fixed-case>`, `<fn>`, `<fn-group>`, `<fpage>`, `<front>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<given-names>`, `<glossary>`, `<glyph-data>`, `<glyph-ref>`, `<gov>`, `<graphic>`, `<hr>`, `<index-term>`, `<index-term-range-end>`, `<inline-formula>`, `<inline-graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<institution-wrap>`, `<isbn>`, `<issn>`, `<issn-l>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-title>`, `<italic>`, `<journal-id>`, `<kwd>`, `<kwd-group>`, `<label>`, `<license>`, `<license-p>`, `<list>`, `<list-item>`, `<long-desc>`, `<lpage>`, `<media>`, `<meta-name>`, `<meta-value>`, `<mixed-citation>`, `<monospace>`, `<month>`, `<name>`, `<name-alternatives>`, `<named-content>`, `<nested-kwd>`, `<nlm-citation>`, `<object-id>`, `<on-behalf-of>`, `<open-access>`, `<option>`, `<overline>`, `<p>`, `<page-count>`, `<page-range>`, `<part-title>`, `<patent>`, `<permissions>`, `<person-group>`, `<phone>`, `<postal-code>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<private-char>`, `<processing-meta>`, `<product>`, `<pub-id>`, `<publisher-loc>`, `<publisher-name>`, `<question>`, `<question-preamble>`, `<question-wrap>`, `<question-wrap-group>`, `<rb>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<resource-group>`, `<resource-id>`, `<resource-name>`, `<resource-wrap>`, `<restricted-by>`, `<role>`, `<roman>`, `<rt>`, `<ruby>`, `<sans-serif>`, `<sc>`, `<season>`, `<sec>`, `<sec-meta>`, `<see>`, `<see-also>`, `<self-uri>`, `<series>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<state>`, `<statement>`, `<std>`, `<std-organization>`, `<strike>`, `<string-date>`, `<string-name>`, `<styled-content>`, `<sub>`, `<subj-group>`, `<subject>`, `<subtitle>`, `<suffix>`, `<sup>`, `<supplement>`, `<supplementary-material>`, `<support-description>`, `<support-group>`, `<support-source>`, `<surname>`, `<table>`, `<table-wrap>`, `<table-wrap-foot>`, `<tbody>`, `<td>`, `<term>`, `<term-head>`, `<textual-form>`, `<tfoot>`, `<th>`, `<thead>`, `<time-stamp>`,

<title>, <title-group>, <tr>, <trans-source>, <trans-title>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
An XML identifier (ID)	A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.

10.5.61 @indent-level Indentation Level

This numeric attribute indicates the level of indentation of a line of verse (<verse-line>), relative to the entire verse or stanza (<verse-group>) in which the line is found.

In element <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Typically a counting number that indicates the relative positioning of this verse line within its verse group, for example, "1" for level 1 indentation, "2" for level 2 indentation, etc. Note that the units in which indents are measured are left to the application.

10.5.62 @index-type Type of Index

Names the specific indexes in which an index term (<index-term>) should be used, for example, "author", "subject", "chemical".

In element <index-term>, this attribute *may* be used if the element is used.

Value	Meaning
One or more words	A word naming the index, or a series of words each representing a specific index.

10.5.63 @initials Initials for Personal Names

Initial(s) for the surname or the given names of a person.

In elements <given-names> and <surname>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The initial letters of a person's names.

10.5.64 @institution-id-type Type of Institution Identifier

Type of or name for an institution identifier, such as an ISNI or a RIN (Ringgold).

In element <institution-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of the institution identifier, such as ISNI, Ringgold, or DOI.

10.5.65 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date value ("YYYY-MM-DDThh:mm:ss") for a JATS date-specific element, whether the content of the date be specified as text, an ISO date, a partial date, or as any other date format. If the date *given in the content of the element* is in a non-Gregorian calendar, this attribute can hold the Gregorian calendar equivalent of that date.

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In elements <access-date>, <article-version>, <conf-date>, <date>, <date-in-citation>, <string-date>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 standard date format ("YYYY-MM-DDThh:mm:ss") for the date given in the element, for example, "2015-07-15".

10.5.66 @issue Issue Number of a Related Article

Issue number of a journal which contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The number of the journal issue, such as "48".

10.5.67 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A journal abbreviation or other journal identifier.

10.5.68 @journal-id-type Type of Journal Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In elements <journal-id> and <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Word or phrase that names the type of identifier (for example, "doi") or that identifies the type of organization or service which assigned the identifier (for example, "index" to indicate an abstracting or indexing service).

10.5.69 @kwd-group-type Type or Kind of Keywords in the Group

The class or type of keyword, for example, "abbreviations" (for keywords that contain an abbreviation and its expansion) or "author-provided".

In element <kwd-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	This attribute is used in two different senses: 1) The primary usage describes the class or type of keyword, for example, "abbreviations" for keywords that contain an abbreviation and its expansion, "hierarchical" for keywords that are grouped into a hierarchy, or "code" for keywords that contain a code and its text. 2) The attribute can also name the source that established a particular group of keywords, when the source is not an institutional assigning authority, for example, "author-provided", "publisher", and "editorial".

10.5.70 @language Code Language

Programming or scripting language in which this code is written, e.g. "javascript", for code written in "JavaScript 3.0". (The "3.0" is recorded in the @language-version attribute.)

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The lower case name of the programming or scripting language.

10.5.71 `@language-version` Code Language Version

Version of the language in which this code is written, e.g. "`3.0`", for code written in "JavaScript 3.0". (The language name "`javascript`" is recorded in the `@language` attribute.)

In element <code>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The version of the language in the code sample, such as "`3.0`", "`8A`", etc.

10.5.72 `@license-type` Type of License

Type of license described by the element.

In element <license>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of license, for example, "`open-access`" for a license permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited; or "`ccc`" for a Copyright Clearance Center statement.

10.5.73 `@link-type` Type of Link (for a Related Object)

How a <related-object> element is related to the current document (for example, to indicate a Table of Contents relationship).

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of relationship between the related object and the current document.

10.5.74 `@list-content` List Content

Type of list, usually with a semantically meaningful name (for example, a "`where-list`" for the list of the variables that follows an equation, a "`notation-list`", or a "`procedure-list`" for a list of procedural steps to follow).

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of list for named list types, for example, a "`where-list`" for a list of the variables that frequently follows an equation, a "`notation`" list, or a "`procedure-list`" or "`step-list`" for a list of procedural steps to follow.

10.5.75 `@list-type` Type of List

Specifies what prefix character should precede each list item. For example, the style may suggest the character type ("`simple`" or "`ordered`"), or the style may name the character explicitly ("`alpha-lower`" for a list numbered "a.", "b.", "c.").

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In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
bullet	Unordered list in which item order has no meaning, and the prefix character for each item is a bullet or other symbol.
order	Ordered list in which item order is important, and the prefix character for each item is a sequential symbol such as a counting number, letter of the alphabet, or roman numeral.
simple	Unordered list in which item order has no meaning, and there is no prefix character for each item.

10.5.76 @math-representation Math Representation in This Document

A list of the (possibly many) ways that mathematical expressions may be represented in this document, for example, both MathML and TeX ("mathml tex") or both MathML, SVG graphics, and narrative text ("mathml images plain-text").

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
A space-separated list of words that name math representation types	The math representations that may be used in the document, for example, "mathml", "latex", "tex", "images", and "plain-text"

10.5.77 @mathml-version MathML Version

Which version of MathML is used by the tag set for this document?

In element <processing-meta>, this attribute *may* be used if the element is used.

Value	Meaning
2.0	MathML 2.0 is used
3.0	MathML 3.0 is used

10.5.78 @mime-subtype Mime Subtype

Mime subtype for a graphic, multimedia object, or piece of supplementary material.

In element <inline-graphic>, this attribute *may* be used if the element is used.

Value	Meaning
cgm	Computer Graphics Metafile.
gif	CompuServe Graphic Interchange Format.
jpeg	Joint Photographic Experts Group raster.
png	Portable Network Graphics.
tiff	Tag Image File Format.

In elements <graphic>, <inline-media>, <inline-supplementary-material>, <media>, and <supplementary-material>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific mime subtype (from the November 2003 list).

10.5.79 `@mimetype` Mime Type

Mime type for a graphic, multimedia object, or piece of supplementary material.

In element `<inline-graphic>`, this attribute *must* have the value `image` (as given below).

Value	Meaning
image	Internet Assigned Numbers Authority (IANA) mimetype “image” .

In elements `<graphic>`, `<inline-media>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The appropriate mime type for the object.

10.5.80 `@name` Name (Private Character)

This attribute is used with `<private-char>`, to contain the unique name for the private character being defined.

In element `<private-char>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with `<private-char>`, supplies the name of the character being defined. By convention, this character should be named in a fashion similar to names found in the Unicode Standard (for example, in all uppercase ASCII, “`NORTHWEST SOUTHEAST ARROW`”).

10.5.81 `@name-style` Name Style

Style of processing requested for a structured personal name.

In elements `<name>` and `<string-name>`, this attribute will be assigned the value `western` by default.

Value	Meaning
eastern	The name will **both** be displayed and sorted/inverted with the family name preceding the given name.
given-only	The single name provided is a given name, not a family name/surname. The single name will be both the sort and the display name.
islensk	The name will **both** be displayed and sorted/inverted with the given name preceding the family name.
western	The name will be displayed with the given name preceding the family name, **but** will be sorted/inverted with the family name preceding the given name.

10.5.82 `@object-id` Object Identifier

Identifier of an object (for example, a table, figure, or sidebar) within a separate document that is the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the text or graphic object for a `<related-object>` element.

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10.5.83 `@object-id-type` Object Identifier Type

Type of object identifier (for example, an XML `ID`, a string, the label of the object, a DOI) for a `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of the identifier, for example, "`ID`" for an XML attribute of type `ID`.

10.5.84 `@object-type` Object Type

Type of object (for example, "`table`", "`figure`", "`sidebar`") that is the target of the `<related-object>` element.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the type of related object, such as "`table`".

10.5.85 `@orientation` Orientation

Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical ("`portrait`") or in a wide manner with the long edge horizontal ("`landscape`").

In elements `<array>`, `<boxed-text>`, `<chem-struct-wrap>`, `<code>`, `<fig>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, and `<table-wrap>`, this attribute will be assigned the value `portrait` by default.

Value	Meaning
landscape	Indicates that the object should be rotated by 90 degrees.
portrait	Indicates that the object should not be rotated by 90 degrees.

10.5.86 `@page` Page of Related Article

Page number of a related journal article, which may be either the number of the journal page on which the article starts or a page range.

In element `<related-article>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The page number on which a related article starts or the range of pages for a related article. For example, the value may be a page number such as "`1145`", a page range such as "`35-58`", or a letter/number combination, such as "`46a`" or "`iii`".

10.5.87 `@person-group-type` Type of People in the Person Group

Role of the person(s) being named in the `<person-group>` element (for example, author, editor, curator).

In element `<person-group>`, this attribute *may* be used if the element is used.

Value	Meaning
allauthors	Used to identify a complete list of authors when a subset of the author group is used elsewhere in the citation. This may occur, for example, when a citation identifies both a book and a chapter within the book.
assignee	Persons to whom a patent is awarded.

Value	Meaning
author	Content creators.
compiler	Persons who put together a composite work from multiple sources.
curator	Person or group responsible for data curation or archival curation
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute `@custom-type`
director	Directors.
editor	Content editors.
guest-editor	Content editors who have been invited to edit all or part of a work.
illustrator	Creator of the pictures, drawings, or other illustrations (includes photographer)
inventor	Idea, software, or machine creators.
research-assistant	Assisted with the scientific research that is the basis for a work
transed	Editors of a translated version of a work.
translator	Persons who translated the work from one language into another.

10.5.88 `@platforms` Platforms

Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word "name", and multiple platform names will be separated by spaces.

In element `<code>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Platform on which the `<code>` is intended to run, for example, "`Mac-OSX`".

10.5.89 `@pointer-to-explained` Pointer to Object Described in Explanation

Used in an `<explanation>` to point to the `<question>`, `<answer>`, or `<option>` that is being explained.

In element `<explanation>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of the object or objects being explained.

10.5.90 `@pointer-to-question` Pointer to Question

Used in an `<answer>` to point to the `<question>`(s) for which it supplies correct answer(s).

In element `<answer>`, this attribute *must* be used if the element is used.

Value	Meaning
One or more identifiers (of type IDREF)	Points to the existing identifier(s) (`@id` attributes) of one or more `<question>` elements. Typically an answer points to a single question.

10.5.91 `@position` Position

Typically indicates whether a display object (for example, figure, table, boxed text) must be anchored in its exact location within the text or may float to a different location in the document (for example, to the top of the next page, into the next column, within a separate window). Also used to indicate that the display object should be placed in the margin or used as a background image behind the text.

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In elements <boxed-text>, <chem-struct-wrap>, <code>, <fig>, <graphic>, <media>, <preformat>, <supplementary-material>, and <table-wrap>, this attribute will be assigned the value float by default.

Value	Meaning
anchor	The object must remain in its exact location in the text flow.
background	The object (typically an image) is used as background displayed visually "behind" the narrative text.
float	The object is not anchored and may be moved to a new column, a new window, a new page, the end of the document, etc.
margin	In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.

10.5.92 @prefix-word Prefix Word (For a List Item)

Word or phrase to be added to the beginning of each item in a list (for example, "Step", "Procedure").

In elements <def-list> and <list>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The prefix word to be used for the list; for example, the word "Step" might be used to display a list numbered "Step1.", "Step2.", "Step3.", etc.

10.5.93 @preformat-type Type of Preformatted Text

Type of content contained in the <preformat> element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

In element <preformat>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A word or phrase that describes the content or names the type of content for the <preformat> element, for example, "poetry" for a formatted poem laid out as a tree or "man-machine" for a man-machine dialog.

10.5.94 @product-type Type of Product

Category of product described in the element (for example, "book", "software", "article", "issue", "website", "film", "hardware").

In element <product>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of product being reviewed, for example, "website" or "videogame".

10.5.95 @pub-id-type Type of Publication Identifier

Type of publication identifier, such as a DOI or a publisher's identifier.

In element <pub-id>, this attribute *may* be used if the element is used.

Value	Meaning
accession	Generic identifier type for a unique identifier given to an item in a data repository. For example, a DNA or protein sequence record for tracking the sequence record and the associated sequence over time.

Value	Meaning
archive	Generic identifier type for an identifier assigned by an archive or other repository (generally used with elements <object-id>, <issue-id>, and <volume-id>).
ark	Archival Resource Key — a Uniform Resource Locator (URL) containing the word "ark" that is a multi-purpose identifier for information objects of any type.
art-access-id	Identifier type for a generic article accession identifier used for interchange and retrieval between archives.
arxiv	arXiv (archive of electronic preprints) identifier.
coden	Obsolete PDB/CCDC identifier (may be present on older articles).
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute @custom-type
doaj	Identifier of the Directory of Open Access Journals.
doi	Digital Object Identifier.
handle	Handle identifier, part of the Handle System for assigning, managing, and resolving persistent identifiers for digital objects and other resources on the Internet.
index	Generic identifier type for an identifier assigned by an abstracting or indexing service (generally used with elements <object-id>, <issue-id>, and <volume-id>).
isbn	International Standard Book Number.
manuscript	Generic identifier type for an identifier assigned to a manuscript.
medline	NLM Medline identifier.
mr	Mathematical Reviews (MR) identifier
other	None of the named identifiers in this list. To name the identifier type, use the value "custom" and then the attribute @custom-type rather than this value "other".
pii	The original "Publisher Item Identifier" (PII) was a system to provide unique and concise identification for individual published documents with a highly specified string. The PII specification is no longer in common use (2010).
pmcid	PubMed Central identifier.
pmid	PubMed Identifier (PubMed ID). See https://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed.
publisher-id	Generic identifier type for a publisher's identifier, such as an "article-id", "artnum", "identifier", "article-number", "pub-id", etc.
sici	Serial Item and Contribution Identifier (An ANSI/NISO Z39.56 code to uniquely identify volumes, articles, or other parts of a periodical. A journal article may have more than one SICI, for example, one for a print version and another for an electronic version.)
std-designation	The official number of a standard, from a standards body such as ISO, NISO, IEEE, ASME, etc., for example, "Z39.96-2019".
zbl	Zentralblatt MATH (zbMATH) identifier.

In elements <issue-id>, <object-id>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
accession	Generic identifier type for a unique identifier given to an item in a data repository. For example, a DNA or protein sequence record for tracking the sequence record and the associated sequence over time.

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Value	Meaning
archive	Generic identifier type for an identifier assigned by an archive or other repository (generally used with elements <object-id>, <issue-id>, and <volume-id>).
ark	Archival Resource Key — a Uniform Resource Locator (URL) containing the word "ark" that is a multi-purpose identifier for information objects of any type.
art-access-id	Identifier type for a generic article accession identifier used for interchange and retrieval between archives.
arxiv	arXiv (archive of electronic preprints) identifier.
coden	Obsolete PDB/CCDC identifier (may be present on older articles).
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute @custom-type
doaj	Identifier of the Directory of Open Access Journals.
doi	Digital Object Identifier.
handle	Handle identifier, part of the Handle System for assigning, managing, and resolving persistent identifiers for digital objects and other resources on the Internet.
index	Generic identifier type for an identifier assigned by an abstracting or indexing service (generally used with elements <object-id>, <issue-id>, and <volume-id>).
isbn	International Standard Book Number.
manuscript	Generic identifier type for an identifier assigned to a manuscript.
medline	NLM Medline identifier.
mr	Mathematical Reviews (MR) identifier
other	None of the named identifiers in this list. To name the identifier type, use the value "custom" and then the attribute @custom-type rather than this value "other".
pii	The original "Publisher Item Identifier" (PII) was a system to provide unique and concise identification for individual published documents with a highly specified string. The PII specification is no longer in common use (2010).
pmcid	PubMed Central identifier.
pmid	PubMed Identifier (PubMed ID). See https://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed.
publisher-id	Generic identifier type for a publisher's identifier, such as an "article-id", "artnum", "identifier", "article-number", "pub-id", etc.
sici	Serial Item and Contribution Identifier (An ANSI/NISO Z39.56 code to uniquely identify volumes, articles, or other parts of a periodical. A journal article may have more than one SICI, for example, one for a print version and another for an electronic version.)
std-designation	The official number of a standard, from a standards body such as ISO, NISO, IEEE, ASME, etc., for example, "Z39.96-2019".
zbl	Zentralblatt MATH (zbMATH) identifier.

10.5.96 @publication-format Format of Publication

Format or medium of the document (for example, "print"). This element is used in several senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date,
- to describe the format/medium for an ISSN or ISBN, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

In elements <date>, <element-citation>, <isbn>, <issn>, <mixed-citation>, and <nlm-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The cited format, for example, "print".

10.5.97 @publication-type Type of Referenced Publication

Category of publication being cited (for example, "journal" (journal article), "preprint", "book", "letter", "review", "patent", "report", "standard", "data", "working-paper").

In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publication, for example, "book", "journal" (for a journal article), "patent", "preprint", or "data" (for a dataset, database, spreadsheet, etc.).

10.5.98 @publisher-type Type of Publisher

Type of publisher or publishing organization of a work being cited (for example, "government", "standards-body", "university", "commercial", "foundation", "private", "corporate").

In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of publisher, for example, "government".

10.5.99 @pub-type Type of Publication

Deprecated: On the element <pub-date>, in the Archiving and Publishing Tag Sets, this @pub-type attribute is deprecated in favor of the @publication-format and @date-type attributes. In all Tag Sets, on the element <issn>, this @pub-type attribute is deprecated in favor of the @publication-format attribute (possibly with the @content-type attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

Definition: Deprecated precombination of the format/medium of a document with one or more events from its lifecycle, for example, "epub" for publication in an electronic format or "ppub" for publication in print.

In element <issn>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of print or electronic publication, for example, "epub" for electronic publication.

10.5.100 @question-response-type Type of Answer(s) to be Given to the Question

Used to mark a question as taking a particular type of answer or set of answers, for example, "multiple-choice" or "essay".

In element <question>, this attribute *may* be used if the element is used.

Value	Meaning
essay	The answer to this question requires a longer written answer from the student.

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Value	Meaning
fill-in-the-blank	The answer to this question is a medium-length written answer, typically a phrase or sentence.
multi-select	There are several option choices presented as responses to this question, and the student must select one or more.
multiple-choice	There are several option choices presented as responses to this question, and the student must select one.
short-answer	The answer to this question is a short-length written answer, typically a word or very short phrase or sentence.
true-false	For the answer to this question, the student must choose between "true" and "false".

10.5.101 `@ref-type` Type of Cross-Reference

Type of element that is the target of the cross-reference (for example: a Figure ("`fig`"), an Author Note ("`author-notes`"), or a Bibliographic Reference ("`bibr`")). The values may be used, for example, for type-specific processing or validation.

In element `<xref>`, this attribute *may* be used if the element is used.

Value	Meaning
aff	Affiliation
app	Appendix
author-notes	Author notes
award	Points to the description of or identifier for a grant or award (`<award-id>`), also, possibly to an entire awards group (`<award-group>`)
bibr	Bibliographic reference (typically to a `<ref>` element, but it may point to a `<element-citation>` or `<mixed-citation>` if there are multiple citations inside the `<ref>` element)
bio	Biography (typically of a contributor)
boxed-text	Textbox or sidebar
chem	Chemical structure (to a `<chem-struct>` or `<chem-struct-wrap>` element)
collab	Collaboration
contrib	Contributor
corresp	Corresponding author
custom	Not one of the meanings named in this list. The type can be found as the value of the attribute `@custom-type`
disp-formula	Display formula
fig	Figure or group of figures (to a `<fig>` element)
fn	Footnote
kwd	Keyword
list	List or list item (to a `<list>` or `<list-item>` element; also, possibly to a `<def-list>` or `<def-item>` element)
other	None of the items listed. To name the type, use the value "`custom`" and then the attribute `@custom-type` rather than this value "`other`".
plate	Plate
scheme	Scheme

Value	Meaning
sec	Section
statement	Statement
supplementary-material	Supplementary information
table	Table or group of tables (to a <table-wrap> element)
table-fn	Table footnote

10.5.102 @related-article-type Type of Related Article

Type of article being described by the <related-article> element or type of relationship the article being described by the <related-article> has to the current article (for example, "companion-article" means the related article is a companion to the current article, "corrected-article means the related article corrects the current article", or "preprint" could be used to point from the version of record to an earlier related preprint).

In element <related-article>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The article type for the related article, for example, "addendum".

10.5.103 @resolution Resolution of the Glyph Bitmap

Resolution of a bitmap in dots per inch, expressed as a decimal integer (for example, "72", "300").

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
Decimal integer	The number of dots per inch of the bitmap.

10.5.104 @resource-id-type Resource Identifier Type

Names the type or kind of identifier of a resource, where a resource is defined as some specific support for the work described in this article (for example, "rrid" for a Research Resource Identifier).

In element <resource-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of identifier of a resource, for example, "rrid" for a Research Resource Identifier.

10.5.105 @resource-type Resource Type

Names the type or kind of resource, where a resource is defined as some specific support for the work described in this article, for example, "research-materials".

In element <contributed-resource-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of resource (specific support for the work described), for example, "research-materials".

10.5.106 @rid Reference to an Identifier

Value of the identifier of an associated element; used for linking related elements (for example, <term> to a <def>, <bio> to a <contrib>).

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In element <index-term-range-end>, this attribute *must* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to the existing identifier.

In elements <aff>, <award-group>, <award-id>, <bio>, <contrib>, <def>, <funding-source>, <funding-statement>, <named-content>, <see>, <see-also>, <support-description>, <support-source>, <term>, and <xref>, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to one or more existing identifiers.

10.5.107 @rowspan Row Span (NISO JATS table model)

Table attribute used to request vertical spanning by naming the number of rows a cell spans in a vertical span. (This attribute is based on and intended to be converted easily to the XHTML rowspan attribute.)

In elements <td> and <th>, this attribute will be assigned the value 1 by default.

Value	Meaning
A counting number	How many rows this cell will span vertically, for example, "3".

10.5.108 @rules Rules (NISO JATS table model)

Defines which rules to draw between the rows and columns of an XHTML 1.1 table. (This attribute is based on and intended to be converted easily to the XHTML rules attribute.)

In element <table>, this attribute *may* be used if the element is used.

Value	Meaning
all	Rules on all rows and columns.
cols	Rules between columns.
groups	Rules between groups.
none	No rules in table.
rows	Rules between rows.

10.5.109 @scope Scope (NISO JATS table model)

Specifies the cells for which the current <td> element or <th> element provides header information. Screen readers and other Assistive Technologies use @scope to provide information about the table structure that would be obvious to most sighted people. (This attribute is based on the XHTML scope attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
col	Acts as a header for cells in the same column in following rows.
colgroup	Acts as a header for cells in the current colgroup that are down and to the right of the current cell (i.e., the remaining cells named in the <colgroup> element).
row	Acts as a header cell for cells in the same row in following columns.
rowgroup	Acts as a header cell for cells in the current row group (i.e., in the current <thead>, <tfoot>, or <body>) that are down and to the right of the current cell.

10.5.110 `@sec-type` Type of Section

Type of semantic content included in the section (for example, "`materials`", "`conclusions`").

In element `<sec>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the main semantic type of section content, such as "`conclusions`". This attribute is most useful when a list of values is maintained and articles are tagged accordingly.

10.5.111 `@seq` Sequence

Sequence number of a document within the type of sequence named by the element to which this attribute is attached: on a `<volume>` element, the sequence within the volume; on an `<issue>` element, the sequence within the issue; on an `<fpage>` element, the sequence within a single page; and on an `<elocation-id>` element, the electronic sequence.

In elements `<elocation-id>`, `<fpage>`, `<issue>`, and `<volume>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The number of the document in a sequence of documents within a volume, issue, electronic compilation, or even on the same page. For example, for continuous-makeup journals that start more than one article on the same page, this attribute indicates a sequence number or letter for one of the articles, such as "a", "b", "c"; or "1", "2", "3". For example, a value of "`2`" could mean "`554-2`", page 554, second article.

10.5.112 `@source-id` Source Identifier

Identifier of a journal, book, conference proceedings, or other publication that is (or contains) the target of the `<related-object>`.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the source for the largest publishable unit (such as an entire book or conference proceedings) pointed to by the `<related-object>` element.

10.5.113 `@source-id-type` Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher's identifier) for a `<related-object>`.

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the type of document identifier named in the `@source-id` attribute for a `<related-object>` element. This attribute qualifies the @source-id attribute.

10.5.114 `@source-type` Source Type

This attribute can be used with two elements:

- to identify the kind of source providing an award that sponsored a work or the research on which a work was based (with the element `<funding-source>`), or
- to identify the type of publication, for example, a "`book`", "`journal`", or "`database`" that is (or contains) the target of the `<related-object>`.

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In element <funding-source>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of entity (such as an organization or an individual) that is the source of an award which sponsors a work or the research underlying the work.

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of object that is the source of the related object (<related-object>), for example, "book".

10.5.115 @span Span (NISO JATS table model)

The number of columns that will share the <col> or <colgroup> element's attributes. (This attribute is based on and intended to be converted easily to the XHTML span attribute.)

In elements <col> and <colgroup>, this attribute will be assigned the value 1 by default.

Value	Meaning
A counting number	How many columns will have the same attributes, for example, "3".

10.5.116 @specific-use Specific Use

Specifies distinctions in the applicability of a particular element.

In elements <abbrev>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-version>, <attrib>, <author-comment>, <award-group>, <award-id>, <bio>, <bold>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <era>, <etal>, <explanation>, <ext-link>, <fax>, <fig>, <fixed-case>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-title>, <italic>, <journal-id>, <kwd-group>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <mixed-citation>, <monospace>, <month>, <name>, <named-content>, <nlm-citation>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-id>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <see>, <see-also>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>,

<strike>, <string-date>, <string-name>, <styled-content>, <sub>, <subj-group>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <table>, <table-wrap>, <target>, <term>, <textual-form>, <time-stamp>, <title>, <trans-source>, <trans-title>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A specific distinction in the applicability of a particular element, for example, "print-only".

10.5.117 @start_date Start Date

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In elements <ali:free_to_read> and <ali:license_ref>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The ISO 8601 date on which the document starts being free-to-read or begins the given license.

10.5.118 @style Style (NISO JATS table model; MathML Tag Set)

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), to record XHTML classes CSS style names/classes or similar styling information;
- with many of the elements within a NISO JATS table (<table>), to record the name of the XHTML 1.1 table styling to be applied to the element;
- To format verse, used with <verse-line> and <verse-group>.

In elements <caption>, <col>, <colgroup>, <table>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the markup style for one of the elements within a table or for the entire table.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the inline markup style for the element.

10.5.119 @style-detail Styling Detail

Provides additional information about a style (typically named by the @style attribute), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "hollow" dots and some to be "solid" or filled dots.

In elements <styled-content>, <verse-group>, and <verse-line>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	A value which indicates additional information about a style (`@style`), for example, a sub-style to distinguish between dots or sesamis, by declaring some to be "`hollow`" dots and some to be "`solid`" or filled dots.

10.5.120 `@style-type` Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In elements `<styled-content>`, `<verse-group>`, and `<verse-line>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Name or description for the stylistic type, for example, "`green background`".

10.5.121 `@subj-group-type` Type of Subject Group

Subject, information class, or type of a particular `<subj-group>` element.

In element `<subj-group>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of subject.

10.5.122 `@summary` Summary (NISO JATS table model)

A summary of the contents or the semantics of the table, provided for speech-synthesis and non-visual browsers. (This attribute is based on and intended to be converted easily to the XHTML `summary` attribute.)

In element `<table>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Textual description of the contents of a table, intended to be read to the audience for the table.

10.5.123 `@supplement-type` Type of Supplement

Type of supplement or the reason for the supplement (for example, "`conference`" for a supplement containing information from a conference symposium).

In element `<supplement>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of or reason for the supplement, for example, "`conference`" or "`issue`".

10.5.124 `@support-type` Type of Support Provided

Names a type or kind of support for the research described in this article, for example, provision of facilities or materials.

In element `<support-source>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of support for the research described in this article, for example, provision of facilities or materials.

10.5.125 `@table-model` Table Model Used

Which table model is used by the tag set for this document?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
both	Both XHTML-inspired and OASIS CALS models are used
none	No table models are used
oasis	The OASIS XML Exchange (CALS) table model
xhtml	The XHTML-inspired table model

10.5.126 `@tagset-family` JATS Tag Set Family

Which of the JATS tag set families is the basis for this document's tag set?

In element `<processing-meta>`, this attribute *may* be used if the element is used.

Value	Meaning
bits	BITS (Book Interchange Tag Suite)
jats	JATS (Journal Article Tag Suite)
sts	STS (Standards Tag Suite)

10.5.127 `@target-type` Type of Target

Kind of `<target>` that has been created (for example, describes the reason why some portion of text has been designated for cross-reference purposes).

In element `<target>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the rationale for designating a portion of text for cross-reference.

10.5.128 `@term-status` Term Status

The current status of a term (`<term>`) in the vocabulary from which it is taken, for example, "`preferred`".

In element `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The status word that describes the state of the term, for example, "`non-preferred`" (deprecated).

10.5.129 `@term-type` Type of Term

The type or kind of a term (`<term>`), for example, "`acronym`".

In element `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Type of term being used; for example, the term is an abbreviation or an equation.

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10.5.130 `@toggle` Toggle Switch

Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element `<italic>`, this attribute will be assigned the value `yes` by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In element `<roman>`, this attribute will be assigned the value `no` by default.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

In elements `<bold>`, `<monospace>`, `<overline>`, `<sans-serif>`, `<sc>`, `<strike>`, `<styled-content>`, and `<underline>`, this attribute *may* be used if the element is used.

Value	Meaning
no	The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.
yes	The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.

10.5.131 `@units` Units

The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value may record "`pages`", "`minutes`", "`seconds`", or "`linear-feet`").

In element `<size>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names the units of measure in which the size is expressed, for example, "`MB`".

10.5.132 `@use-type` Type of Use

If there is a specific use-case for this citation, this attribute describes it, for example, if this is a data citation, it may state that the data was "`analyzed-data`" for this article, rather than generated.

In elements `<element-citation>` and `<mixed-citation>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	There are no set value list for this attribute, but the current use-case is for data citations, to express the difference between generated, analyzed, or referenced data.

10.5.133 `@valign` Vertical Alignment (NISO JATS table model)

Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `valign` attribute.)

In elements `<col>`, `<colgroup>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

Value	Meaning
baseline	All cells in the same row as a cell whose `@valign` attribute has this value should have their textual data positioned so that the first text line occurs on a baseline common to all cells in the row. This constraint does not apply to subsequent text lines in these cells.
bottom	Cell data is flush with the bottom of the cell.
middle	Cell data is centered vertically within the cell.
top	Cell data is flush with the top of the cell.

10.5.134 `@vocab` Vocabulary/Taxonomy Name

The name of a taxonomy, ontology, database, term list, thesaurus, index, controlled vocabulary (defined formally), generic vocabulary (subject area that is defined informally), etc. that is the source of terms such as keywords and subjects.

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<institution-id>`, `<kwd>`, `<kwd-group>`, `<named-content>`, `<nested-kwd>`, `<resource-id>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subj-group>`, `<subject>`, and `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The name of the vocabulary, taxonomy, ontology, database, term list, index, etc. that is the source of the term named in the element's content.

10.5.135 `@vocab-identifier` Vocabulary/Taxonomy Identifier

Unique identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, for example, the controlled vocabulary for a group of terms such as a keywords or subjects. The content is typically (but is not limited to) a URI or DOI.

In elements `<article-version>`, `<compound-kwd>`, `<compound-subject>`, `<custom-meta>`, `<extended-by>`, `<index-term>`, `<inline-media>`, `<institution-id>`, `<kwd>`, `<kwd-group>`, `<named-content>`, `<nested-kwd>`, `<resource-id>`, `<restricted-by>`, `<role>`, `<see-also>`, `<subj-group>`, `<subject>`, and `<term>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The identifier of the controlled vocabulary, taxonomy, ontology, database, thesaurus, index, etc. that is the source of the content in the element, typically (but not limited to) a URI or DOI.

10.5.136 `@vocab-term` Vocabulary/Taxonomy Term

The named vocabulary's canonical form of the term. (Note: The content of the element to which this attribute is attached is the display version of the term.)

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In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <kwd>, <named-content>, <nested-kwd>, <restricted-by>, <role>, <see-also>, <subject>, and <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The canonical form of the term in the named vocabulary. This may or may not duplicate the content of the element.

10.5.137 @vocab-term-identifier Vocabulary/Taxonomy Term Identifier

A unique identifier within a specific vocabulary for the term to which this attribute is attached, such as (but not limited to) an item number, a URI, a DOI, etc.

In elements <article-version>, <compound-kwd>, <compound-subject>, <custom-meta>, <extended-by>, <index-term>, <inline-media>, <kwd>, <named-content>, <nested-kwd>, <restricted-by>, <role>, <see-also>, <subject>, and <term>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	An identifier of the term within a specific vocabulary, such as (but not limited to) an item number, a URI, DOI, etc.

10.5.138 @vol Volume of Related Article

Volume of the journal in which a related journal article exists.

In element <related-article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The journal volume number for a related journal article, for example, "3" for the third volume, "125" for the one hundred and twenty-fifth, or "XV" for the fifteenth.

10.5.139 @width Width (NISO JATS table model)

This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements <col>, <colgroup>, and <table>, this attribute *may* be used if the element is used.

Value	Meaning
Number	Within the NISO JATS Table model (<table>), the width of the table. By default, the NISO JATS table model (based on and designed to be converted easily to the XHTML 1.1 table model) should be used as defined in the XHTML 1.1 table model, to take advantage of existing software for table handling.

10.5.140 @xlink:actuate Actuating the Link

The intended behavior for a link when activated by an application, specifically, the timing for obtaining or retrieving the content of a link (for example, by a user clicking on the link to request the material, or by the material being automatically loaded with a document when the document or document component is loaded).

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>,

<institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
none	The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
onLoad	An application should retrieve the link at the same time a user obtains the initial document.
onRequest	An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.
other	The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.

10.5.141 `@xlink:href` Href (Linking Mechanism)

An address or identifier that permits an XLink application to find a remote resource, for example, a URI (such as a URL or filename) that links to an online site associated with the author or the online definition of a term.

In elements <graphic>, <inline-graphic>, <inline-media>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (a URL) to a resource.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (a URL) to a resource.

10.5.142 `@xlink:role` Role of the Link

A URI reference pointing to some resource that describes the role or function of a link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The URI of a resource that describes the role, reason, or rationale for the link.

10.5.143 `@xlink:show` Showing the Link

The intended presentation behavior for a link, specifically the manner in which the content of a link will be displayed, for example, as embedded material or in a separate window.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
embed	The link should be displayed as part of the initial document being viewed, i.e., the material will be "embedded" directly into the initial document.
new	The link should be displayed as a new, separate window, frame, pane, or other presentation context.
none	The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
other	The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.
replace	The link should be displayed in the same window, frame, pane, or other presentation context as the initial document, thereby "replacing" the document or other object being linked.

10.5.144 `@xlink:title` Title of the Link

Describes the function of a link's remote resource in human-readable fashion.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive, human-readable title that acts as a brief description of the link.

10.5.145 `@xlink:type` Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word "`simple`", which means that the link is a simple, one-ended link.

In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

10.5.146 `@xml:base` Base

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an `@xml:base` of "`https://jats.nlm.nih.gov/`", a URI inside the document of "`publishing/rationale.html`" would be processed as if it were "`https://jats.nlm.nih.gov/publishing/rationale.html`". Values of `@xml:base` are inherited, meaning that if there is an `@xml:base` on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.

In elements <abbrev>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alt-title>, <alternatives>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article>, <article-meta>, <article-title>, <article-version>, <attrib>, <author-comment>, <award-desc>, <award-group>, <award-id>, <award-name>, <back>, <bio>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <copyright-year>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <era>, <etal>, <explanation>, <ext-link>, <extended-by>, <fax>, <fig>, <fixed-case>, <fn>, <fn-group>, <fpage>, <front>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <hr>, <index-term>, <index-term-range-end>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-title>, <italic>, <journal-id>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <object-id>, <on-behalf-of>, <open-access>, <option>, <overline>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>,

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<processing-meta>, <product>, <pub-id>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <resource-wrap>, <restricted-by>, <role>, <roman>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <see>, <see-also>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-date>, <string-name>, <styled-content>, <sub>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <surname>, <table>, <table-wrap>, <table-wrap-foot>, <target>, <tbody>, <td>, <term>, <term-head>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-source>, <trans-title>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The base URI.

10.5.147 `@xml:lang` Language

The language of the intellectual content of the element for which this is an attribute.

The value of this attribute must conform to IETF RFC 5646 (https://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "fr" (French), "en" (English), "de" (German), or "zh" (Chinese) is sufficient. These values are **NOT** case sensitive, but current best practice uses all lower case. In addition to the primary-language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: https://www.iana.org/assignments/language-subtag-registry

In element <article>, this attribute will be assigned the value en by default.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "en" for English or "de" for German) or for a language and a script ("ja-Kana").

In elements <abbrev>, <abstract>, <ack>, <addr-line>, <address>, <aff>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <answer>, <answer-set>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib-id>, <contributed-resource-group>, <copyright-holder>, <copyright-statement>, <country>, <custom-meta>, <custom-meta-group>, <data-title>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <era>, <etal>, <explanation>, <ext-link>, <fig>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <index-term>, <inline-formula>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <institution-id>, <issue>, <issue-id>, <issue-part>, <issue-title>, <journal-id>, <kwd-group>, <label>, <license>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <mixed-citation>, <month>, <name>, <named-content>, <nlm-citation>, <on-behalf-of>, <open-access>, <option>, <p>, <page-range>, <part-title>, <patent>, <person-group>,

<postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <publisher-loc>, <publisher-name>, <question>, <question-preamble>, <question-wrap>, <question-wrap-group>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <resource-group>, <resource-id>, <resource-name>, <role>, <rt>, <season>, <sec>, <see>, <see-also>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-date>, <string-name>, <styled-content>, <subj-group>, <subtitle>, <suffix>, <supplement>, <supplementary-material>, <support-description>, <support-group>, <support-source>, <table-wrap>, <target>, <term>, <textual-form>, <trans-source>, <trans-title>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute *may* be used if the element is used.

Value	Meaning
An alphanumeric string, which may include hyphens	An abbreviation for a natural language (such as "en" for English or "de" for German) or for a language and a script ("ja-Kana").

10.5.148 @xmlns:ali NISO ALI Namespace (NISO Access and License Indicators)

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO *Access and License Indicators*) elements. All namespace prefixes must be associated with a URL, and the prefix "ali" has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices recommendation.

In elements <ali:free_to_read>, <ali:license_ref>, and <article>, this attribute *must* have the value http://www.niso.org/schemas/ali/1.0/ (as given below).

Value	Meaning
http://www.niso.org/schemas/ali/1.0/	The URI named in the NISO *Access License and Indicator*s for the ALI elements.

10.5.149 @xmlns:mml MathML Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix "mml" has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same namespace is used for both MathML 2.0 and MathML 3.0.

In elements <article> and <mml:math>, this attribute *must* have the value http://www.w3.org/1998/Math/MathML (as given below).

Value	Meaning
http://www.w3.org/1998/Math/MathML	The prefix "mml" has been set to the URL for the W3C MathML Tag Set.

10.5.150 @xmlns:xlink XLink Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the XLink linking attributes. All namespace prefixes must be associated with a URL, and the prefix "xlink" has been set to the URL for the World Wide Web Consortium (W3C) XLink Recommendation.

In element <article>, this attribute *must* have the value http://www.w3.org/1999/xlink (as given below).

Value	Meaning
http://www.w3.org/1999/xlink	The prefix "xlink" has been set to the URL for the W3C XLink Recommendation.

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In elements <abbrev>, <article-version>, <award-desc>, <award-group>, <award-id>, <award-name>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <extended-by>, <funding-source>, <graphic>, <inline-graphic>, <inline-media>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <resource-name>, <restricted-by>, <self-uri>, <supplementary-material>, <support-source>, <uri>, and <volume-id>, this attribute *may* be used if the element is used.

Value	Meaning
http://www.w3.org/1999/xlink	When this attribute is used, the prefix "xlink" should be set to the URL for the W3C XLink Recommendation.

10.5.151 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use in namespace pseudo-attributes such as @xsi:noNamespaceSchemaLocation. All namespace prefixes must be associated with a URL, and the prefix "xsi" has been set to the URL for the World Wide Web Consortium (W3C) XML Schema.

In element <article>, this attribute *must* have the value http://www.w3.org/2001/XMLSchema-instance (as given below).

Value	Meaning
http://www.w3.org/2001/XMLSchema-instance	The prefix "xsi" has been set to the URL of the W3C XML Schema.

10.5.152 @xml:space Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements <code>, <glyph-data>, and <preformat>, this attribute *must* have the value preserve (as given below).

Value	Meaning
preserve	White space should be preserved. (This value is fixed and cannot be changed in a document.).

10.5.153 @x-size X Size of the Glyph

The pixels per row in the bit-mapped glyph that has been declared with a <glyph-data> element as part of a <private-char> element.

In element <glyph-data>, this attribute *may* be used if the element is used.

Value	Meaning
A number	An integer number of pixels, for example, "45", that is the number of pixels in each row of the bitmap of the <glyph-data> element.

10.5.154 @xsi:noNamespaceSchemaLocation No Namespace Schema Location

A pseudo-attribute some processors use to point to the location of the Tag Set's XSD file. Cannot be used with DTDs.

In element <article>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	File location of the XSD driver file.

10.5.155 `@y-size` Y Size of the Glyph

The number of rows in the bit-mapped glyph that has been declared with a `<glyph-data>` element as part of a `<private-char>` element.

In element `<glyph-data>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	The number of rows (for example, "`25`") used to define the glyph in a `<glyph-data>` element.

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Bibliography

(This Bibliography is not part of the ANSI/NISO Z39.96-2021 standard, *JATS: Journal Article Tag Suite*. It is included for information only.)

ANSI/NISO Z39.84:2005 (R2010), Syntax for the Digital Object Identifier, https://groups.niso.org/apps/group_public/download.php/14689/

ANSI/NISO Z39.56-1996 (R2002), Serial Item and Contribution Identifier (SICI), https://groups.niso.org/apps/group_public/download.php/6514/

IETF Best Current Practice (BCP) 47, Request for Comments (RFC) 5646, Tags for Identifying Languages, https://www.rfc-editor.org/rfc/rfc5646.txt

Internet Assigned Numbers Authority (IANA), Language Subtag Registry, https://www.iana.org/assignments/language-subtag-registry

Internet Assigned Numbers Authority (IANA), MIME Media Types, https://www.iana.org/assignments/media-types/

ISO 3166-1, Codes for the representation of names of countries and their subdivisions — Part 1: Country codes, https://www.iso.org/iso-3166-country-codes.html

ISO 3297:2020, International standard serial number (ISSN), https://www.iso.org/standard/73846.html

ISO 4217, Codes for the representation of currencies and funds, https://www.iso.org/iso-4217-currency-codes.html

ISO 26324, Information and documentation — Digital object identifier system, https://www.iso.org/standard/43506.html

The Unicode Consortium. *The Unicode Standard* http://www.unicode.org/versions/latest/

XHTML™ Modularization 1.1 - Second Edition, Section 5.6.2. Tables Module 27 March 2018, https://www.w3.org/TR/2018/SPSD-xhtml-modularization-20180327/

W3C Recommendation, Extensible Markup Language (XML) 1.0, 10 February 1998, https://www.w3.org/TR/1998/REC-xml-19980210

W3C Recommendation, Mathematical Markup Language (MathML) Version 2.0 (Second Edition), 21 October 2003, https://www.w3.org/TR/2003/REC-MathML2-20031021/

W3C Recommendation, Namespaces in XML 1.0, 14 January 1999, https://www.w3.org/TR/1999/REC-xml-names-19990114/

W3C Recommendation, XML Linking Language (XLink) Version 1.0, 27 June 2001, https://www.w3.org/TR/2001/REC-xlink-20010627/

W3C Recommendation, XML Schema Part 1: Structures Second Edition, 28 October 2004, https://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

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