ANSI/NISO Z39.96-2012
ISSN: 1041-5653

JATS: Journal Article Tag Suite

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.

An American National Standard
Developed by the
National Information Standards Organization

Approved August 9, 2012 by the American National Standards Institute

Published by the National Information Standards Organization
Baltimore, Maryland, U.S.A

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http://www.niso.org/workrooms/journalmarkup

Published by:
NISO
3600 Clipper Mill Road
Suite 302
Baltimore, MD 21211
www.niso.org

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Printed in the United States of America
ISSN: 1041-5653 (National Information standards series)
ISBN: 978-1-937522-09-4 (HTML)
ISBN: 978-1-937522-10-0 (PDF)

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Foreword

(This foreword is not part of the ANSI/NISO Z39.96-2012 standard, *JATS: Journal Article Tag Suite*. It is included for information only.)

About This Standard

The National Center for Biotechnology Information (NCBI; http://www.ncbi.nlm.nih.gov) of the National Library of Medicine (NLM; http://www.nlm.nih.gov) originally created the Journal Archiving and Interchange Tag Suite with the intent of providing a common format in which publishers and archives could exchange journal content.

The Tag Suite was developed in response to 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.

Changes to the Tag Suite have always been user-driven. User-suggested changes are collected and discussed by the Working Group who decide on action. The intent is to put this standard under continuous maintenance, and allow the standard to continue to change based on user comment.

This standard (now named NISO JATS: Journal Article Tag Suite 1.0) is a revision of the NLM Journal Archiving and Interchange Tag Suite version 3.0. An NLM version named "NLM 3.1" was never published; the intermediate Tag Sets for the NISO Trial Use standard were numbered "NISO JATS 0.4". This NISO JATS 1.0 standard is the intellectual successor to NLM 3.0. In addition to the element and attribute descriptions, three journal article tag sets (the Archiving and Interchange Tag Set, the Journal Publishing Tag Set, and the Article Authoring Tag Set) have been provided as part of NISO JATS 1.0.

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American Geophysical Union (AGU)
Carter Glass (Primary), Jon Sears (Alternate)

American Institute of Physics (AIP)
Terry Hulbert (Primary), Evan Owens (Alternate), James Wonder (Alternate)

American Psychological Association
Linda Beebe (Primary), Janice Fleming (Alternate)

American Society for Information Science & Technology (ASIS&T)
Mark Needleman (Primary)

Association of Research Libraries (ARL)
Julia Blixrud (Primary), Charles Lowry (Alternate)

College Center for Library Automation (CCLA)
David Brightbill (Primary), Lucy Harrison (Alternate)

Library of Congress
Sally McCallum (Primary), John Zagas (Alternate)

Los Alamos National Laboratory
Miriam Blake (Primary)

Lyrasis
Peter Murray (Primary), Robin Dale (Alternate), Tim Daniels (Alternate)

Music Library Association
Mark McKnight (Primary), David Sommerfield (Alternate)

National Archives and Records Administration (NARA)
Laura McCarthy (Primary), Marilyn Redman (Alternate)

National Federation of Advanced Information Services (NFAIS)
Marjorie Hlava (Primary)

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EBSCO Information Services
Oliver Pesch (Primary)

Ex Libris, Inc.
Mike Dicus (Primary)

Inera Inc.
Bruce Rosenblum (Primary)

Innovative Interfaces, Inc.
Gerald Kline (Primary), Betsy Graham (Alternate)

ITHAKA/JSTOR/Portico
Amy Kirchhoff (Primary) , Bruce Heterick (Alternate)

National Library of Medicine (NLM)
Barbara Rapp (Primary), Jacque-Lynne Schulman (Alternate)

National Security Agency
Kate Dolan (Primary), Kathleen Rattell (Alternate)

Ringgold, Inc.
Donald Chvatal (Primary)

SAGE Publications
Carol Richman (Primary), Richard Fidczuk (Alternate)

Content and Collection Management Topic Committee

At the time this standard was approved, the following were members of the Content and Collection Management Topic Committee that had oversight for the project:

Julia Blixrud, Co-Chair
Association of Research Libraries

Eva Bolkovac
Yale University Library

Lettie Conrad
SAGE Publications

Diane Hillmann
Syracuse University

Marjorie Hlava
National Federation of Advanced Information Services (NFAIS)

Rebecca Kennison
Columbia University

Betty Landesman
NIH Library

Rice Majors, Co-Chair
University of Colorado at Boulder

Dorothea Salo
University of Wisconsin, Madison

Ken Wells
Innovative Interfaces, Inc.

NISO Standardized Journal Article Markup Working Group Members

The following individuals served on the NISO Standardized Journal Article Markup Working Group, which developed and approved this standard:

Jeffrey Beck, Co-chair
National Center for Biotechnology Information (NCBI), U.S. National Library of Medicine

Thomas Dowling
OhioLINK

Kathryn Henniss
HighWire Press

Laura Kelly
National Center for Biotechnology Information (NCBI), U.S. National Library of Medicine

Deborah A. Lapeyre
Mulberry Technologies, Inc.

Nikos Markantonatos
Atypon Systems Inc.

John Meyer
ITHAKA/JSTOR/Portico

Evan Owens
American Institute of Physics

Bruce Rosenblum
Inera Inc

B. Tommie Usdin, Co-chair
Mulberry Technologies, Inc.

Alex Wade
Microsoft Corporation

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ANSI/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. Also, new tag sets can be built from the elements and attributes in the Tag Suite and should be 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 (http://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 (http://jats.nlm.nih.gov/archiving/tag-library/1.0/index.html)
    - Journal Publishing Tag Library (http://jats.nlm.nih.gov/publishing/tag-library/1.0/index.html)
    - Article Authoring Library (http://jats.nlm.nih.gov/articleauthoring/tag-library/1.0/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

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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, and there are some that are provided as “building blocks” but that are not used in any of the provided Tag Sets.
- 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.
- An informational name for the attribute. This is often a longer or more formal name than the XML Name.
- The definition of the attribute.

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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` **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
    - 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:

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- A list of the elements for which this block of information is relevant.
- A restrictions statement, which may have any of the following values:
  - "This is an optional attribute; there is no default."
  - "This attribute is required, it must be specified if this element is used."
- 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 the Journal Article Tag Suite. 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.

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

W3C Proposed Recommendation, XHTML Modularization 1.1, Section 5.6.2. Tables Modules, 13 February 2006, http://www.w3.org/TR/2006/PR-xhtml-modularization-20060213/

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

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

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

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

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W3C Recommendation, XML Schema Part 1: Structures Second Edition, 28 October 2004, http://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 element that contains one or more of the same element or several related elements. The elements have no structural relation; they are grouped together for semantic or processing convenience.
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 or small graphic 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.
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 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.

Term/Acronym	Definition
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>http://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. (http://www.w3.org/2001/XMLSchema-instance).

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>`.

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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, 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).
✓	✓	✓	<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 graphic or figure.
✓	✓		<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<anonymous> **Anonymous** Placeholder for the name of a contributor where the actual name is unknown or not disclosed.
✓	✓	✓	<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 identifier assigned to an article.
✓	✓	✓	<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.
✓	✓	✓	<attrib> **Attribution** Container element for information concerning the origin of an extract, display quote, poetry, 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-group> **Award Group** Container element for information concerning one award under which the work (or the research on which the work was based) was supported.
✓	✓	✓	<award-id> **Award Identifier** Unique identifier assigned to an award, contract, or grant.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<back> **Back Matter** Material published with an article but following the narrative flow.
✓	✓	✓	<bio> **Biography** Biographical data concerning a contributor or the description of a collaboration.
✓	✓	✓	<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>).
✓	✓	✓	<chapter-title> **Chapter Title in a Citation** Title of a cited book chapter.
✓	✓	✓	<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.
✓	✓	✓	<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> these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHMTL col element.)

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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 XHMTL col element.)
✓	✓	✓	<collab> **Collaborative (Group) Author** Group of contributors credited under a single name; includes 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".
✓	✓	✓	<conf-num> **Conference Number** Sequential number of a conference.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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.
✓	✓	✓	<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 will hold an ORCID, a trusted publisher's identifier, a JST (Japanese Science and Technology Agency) identifier, or an NII (National Individual Identifier).
✓	✓	✓	<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.
✓	✓	✓	<country> **Country: in an Address** Country name used within an address.
✓	✓		<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.
✓	✓		<counts> **Counts** Container element for counts of a document (for example, 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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<custom-meta-group> **Custom Metadata Group** Container element for metadata not otherwise defined in the Tag Suite.
✓	✓	✓	<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** Container element for one term/definition pair in a definition 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”).
✓	✓	✓	<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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.
✓	✓	✓	<etal> **Et Al.** Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.
✓	✓	✓	<ext-link> **External Link** Link to an external file or resource.
✓	✓	✓	<fax> **Fax Number: in an Address** Portion of an address that contains a fax number.
✓	✓	✓	<fig> **Figure** Block of graphic 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.
✓	✓		<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.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<front> **Front Matter** Container element for the metadata of an article and the journal in which it was published.
✓	✓		<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<graphic> **Graphic** Description of and pointer to an external file containing a still image.
✓	✓		<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.
✓	✓	✓	<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-supplementary-material> **Inline Supplementary Material** Description of and inline 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).
✓	✓	✓	<isbn> **ISBN** International Standard Book Number, the international code for identifying a particular product form or edition of a publication, typically a monographic publication.
✓	✓	✓	<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.
✓	✓	✓	<issn> **ISSN** International Standard Serial Number, the international code that uniquely identifies a serial publication title.
✓	✓	✓	<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<issue-sponsor> **Issue Sponsor** Sponsor for an issue of the journal.
✓	✓	✓	<issue-title> **Issue Title** Theme or special title for a journal 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.
✓	✓		<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 the 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>.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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.
✓	✓	✓	<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.
✓	✓		<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 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://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>.

Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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 taxonomy.
✓	✓	✓	<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).
✓	✓	✓	<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.
✓	✓	✓	<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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 part of a book (for example, chapter, module) 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.
✓	✓	✓	<person-group> **Person Group for a Cited Publication** Container element for one or more contributors in a bibliographic reference.
✓	✓	✓	<phone> **Phone Number: in an Address** Portion of an address which contains a phone number.
✓	✓	✓	<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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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-id> **Publication Identifier for a Cited Publication** Identifier of a publication in a bibliographic reference or product.
✓	✓		<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.
✓	✓	✓	<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.
✓	✓	✓	<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 chapter, figure, table) related to the content but published separately. May include a link to the related object.
✓	✓		<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.
✓	✓	✓	<role> **Role or Function Title of Contributor** Title or role of a contributor to a work (for example, editor-in-chief, chief scientist, photographer, research associate).

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<roman> **Roman** Used to mark text that should remain in roman script no matter what style the surrounding text takes on.
✓	✓	✓	<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.
✓	✓	✓	<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, 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.
✓	✓		<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 graphic 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).

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<source> **Source** Title of a document (for example, journal, book, conference proceedings) that contains (is the source of) the material being cited in a bibliographic reference or product.
✓	✓	✓	<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.
✓	✓	✓	<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.
✓	✓	✓	<strike> **Strike Through** Used to mark text that should appear with a line through it so as to appear struck out.
✓			<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.
✓	✓	✓	<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.
✓	✓	✓	<sub> **Subscript** Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<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).
✓	✓	✓	<supplementary-material> **Supplementary Material** Container element for description of and pointer to additional data files that contain information directly supportive of the document (for example, audio clip, applet, raw research data).
✓	✓	✓	<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 XHMTL `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.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓		<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.
✓	✓	✓	<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 XHMTL 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** This element holds text (mixed content) in places where alternatives can be presented, providing a textual alternative. For example, inside the <alternatives> wrapper element, a <textual-form> can provide an alternative version of an equation, graphic, or table. This alternative textual version may be a direct textual representation of an object (such as a Unicode value for a special character or the full text of an equation in ASCII characters), or a simplified textual version of the object (for display by devices not able to cope with the object), or a text-dump of the contents of a binary object (for example, the full text-dump of the cells of a table to accompany a graphical version of the table).
✓	✓	✓	<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 XHMTL 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 XHMTL 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 XHMTL thead element.)

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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 XHMTL tr element.)
✓	✓		<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** Contains multiple keywords that are not tagged individually.

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Archiving	Publishing	Authoring	<tag> **Element name** Element definition
✓	✓	✓	<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>http://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.
✓	✓	✓	<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-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** Numerical, 4-digit 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.

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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 XHMTL abbr attribute.)
✓	✓		@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 XHMTL align attribute.)
✓	✓	✓	@alt **Alternative Text** Word or phrase that serves as a textual alternative for the element.
✓	✓	✓	@altimg **Alternate Image (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	@alttext **Alternate Text (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓		@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 or 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").
✓	✓	✓	@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 XHMTL axis attribute.)

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@baseline` **Baseline (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	`@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 XHMTL `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 "`Islamic`".
✓	✓	✓	`@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 XHMTL `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 XHMTL `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 XHMTL `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 XHMTL `charoff` attribute.)
✓	✓	✓	`@class` **Class (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	`@collab-type` **Type of Collaboration** Type or role of the collaborators; what function they played in the publication (for example, "`translators`", "`editors`").

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@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 XHMTL `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 or the authority that is responsible for the creation of the contributor identifier.
✓	✓	✓	`@contrib-type` **Type of Contribution** Type of contribution made by the individual (for example, “`author`”, “`editor`”, “`illustrator`”, “`translator`”, “`research-assistant`”).
✓	✓	✓	`@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.
✓	✓	✓	`@date-type` **Type of Date** Event in the lifecycle of an article that this date is marking (for example, 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.

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	`@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 of the Edition** The edition number as an unadorned numeric or alphabetic value.
✓	✓	✓	`@display` **Display (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓			`@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 Identifier** Identifier of a document 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, PII, or a publisher's identifier).
✓	✓	✓	`@document-type` **Document Type** Type of document being described by the `<related-object>` element.
✓	✓	✓	`@dtd-version` **Version of the Tag Set (DTD)** Version of the Tag Set that should be used to validate this article.
✓	✓	✓	`@elocation-id` **Elocation Identifier** Bibliographic identifier for a document that does not have traditional printed page numbers.
✓	✓	✓	`@equal-contrib` **Equal Contribution** Indicates whether or not all contributors contributed equally.
✓	✓	✓	`@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`"), 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).

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	@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. This 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 XHMTL 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.
✓	✓	✓	@headers **Headers (NISO JATS table model)** List of @ids for table data and header cells. (This attribute is based on and intended to be converted easily to the XHMTL headers attribute.)
✓	✓	✓	@height **Height (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	@id **Identifier** Unique identifier of an element; allows element to be cross-referenced. Value must be unique across a document, not just for an element type.
✓	✓	✓	@initials **Initials for Personal Names** Initial(s) for the surname or the given names of a person.
✓	✓	✓	@issue **Issue Number of a Related Article** Issue number of a journal which contains the related article.
✓	✓	✓	@iso-8601-date **ISO-8601 Formatted Date** A machine-processable, ISO 8601 formatted date ("YYYY-MM-DDThh:mm:ss") value for a date that may be specified as text, as a partial date, or as any other date format that cannot be guaranteed to be machine-processable.
✓	✓	✓	@journal-id **Journal Identifier of a Related Article** Identifier for the journal that contains the related article.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@journal-id-type` **Type of Journal Identifier** Type of journal identifier or the authority that created a particular journal identifier.
✓	✓	✓	`@kwd-group-type` **Keyword Authority** This attribute is used with two different definitions. • The most common is the name of the thesaurus, ontology, or organization that established a particular group of keywords, for example, "`MESH`", "`ISO-463`", "`IEEE`", "`author-generated`", "`ICD9-codes`", etc. • The second usage describes the type of keyword for some of the more unusual keyword groups (for example, "`hierarchical`" for keywords that are grouped into a hierarchy, "`abbreviations`" for keywords that contain an abbreviation and its expansion, or "`code`" for keywords that contain a code and its text but where the source of the codes is unknown).
✓	✓	✓	`@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 ("`lower-alpha`" for a list numbered "a.", "b.", "c.").
✓	✓	✓	`@macros` **Macros (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	`@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.
✓	✓	✓	`@mode` **Mode (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@name` **Name** This attribute can be used in several contexts: • for use with the mathematics element (`<mml:math>`), see the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/) • for use with `<private-char>`, it contains the unique name for the private character being defined.
✓	✓	✓	`@name-style` **Name Style** Style of processing requested for a structured personal name.
✓	✓		`@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`”).
✓	✓	✓	`@other` **Other (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	`@overflow` **Overflow (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓	✓	`@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.

Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@person-group-type` **Type of People in the Person Group** Role of the persons being named in `<person-group>` element (for example, authors, editors, members of the G&S chorus).
✓	✓	✓	`@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, 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, computer code, poetry, pseudocode, ASCII art, XML tagging).
✓	✓	✓	`@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 or the organization or system that defined the identifier.
✓	✓	✓	`@pub-type` **Type of Publication** A combination 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 print publication.
✓	✓	✓	`@publication-format` **Format of Publication** Format or medium of the document (for example, "`print`"). This element is used in two senses: • to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, 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, "`book`", "`letter`", "`review`", "`journal`", "`patent`", "`report`", "`standard`", "`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
✓	✓		`@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, "`figure`", "`author-note`", "`bibliographic-reference`"). The values may be used for type-specific processing or validation.
✓	✓	✓	`@related-article-type` **Type of Related Article** Type of article being described by the element (for example, "`companion-article`", "`corrected-article`", "`retracted-article`").
✓	✓	✓	`@resolution` **Resolution of the Glyph Bitmap** Resolution of a bitmap in dots per inch, expressed as a decimal integer (for example, "`72`", "`300`").
✓	✓		`@response-type` **Type of Response** Type of response (`<response>`); parallels `@article-type`.
✓	✓	✓	`@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 XHMTL `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 XHMTL `rules` attribute.)
✓	✓	✓	`@scope` **Scope (NISO JATS table model)** Specifies the cells for which the `<td>` element provides header information. This provides an alternative to using explicitly named header elements (`<th>`) if the arrangement of header cells is not complex. (This attribute is based on and intended to be converted easily to the XHMTL `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.

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	`@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, PII, 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>`) • 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 XHMTL `span` attribute.)
✓	✓	✓	`@specific-use` **Specific Use** Specifies distinctions in the applicability of a particular element.
✓	✓	✓	`@style` **Style (NISO JATS table model; MathML 2.0 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>`), records XHTML classes or similar styling information; • with many of the elements within a NISO JATS table(`<table>`), records the name of the style to be applied to the element; or • with `<mml:math>`, use as defined in the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set (http://www.w3.org/TR/MathML2 [http://www.w3.org/TR/MathML2/]).
✓	✓	✓	`@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 XHMTL `summary` attribute.)

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Archiving	Publishing	Authoring	@attr **Attribute name** Attribute definition
✓	✓	✓	`@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).
✓	✓		`@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.
✓	✓	✓	`@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-references purposes).
✓	✓	✓	`@type` **Type (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
✓	✓		`@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 might record "`pages`", "`minutes`", "`seconds`", or "`linear-feet`").
✓	✓	✓	`@valign` **Vertical 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 XHMTL `valign` attribute.)
✓	✓		`@version` **Version of TeX or LaTeX** Version of TeX or LaTeX used to produce the mathematics.
✓	✓	✓	`@vol` **Volume of Related Article** Volume of the journal in which a related journal article exists.
✓	✓	✓	`@width` **Width (NISO JATS table model; MathML 2.0 Tag Set)** This attribute can be used in several contexts: • within the mathematics element (`<mml:math>`). Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/) • within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) this attribute should be used 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).

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@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 (except the `<mml:math>` element), this attribute may be either omitted or set to the word "`simple`", which means that the link is a simple, one-ended link. For the `<mml:math>` element, the attribute may take any value that describes the link type, for example, a "`simple`" (one-ended) link, a "`locator`" link, a "`title`" link, an "`extended`" (multi-way) link, etc.
✓	✓	✓	`@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 2.0 Tag Set.
✓	✓	✓	`@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 a namespace pseudo-attribute. The value provides a prefix to use for the MathML `@xsi:schemaLocation` attribute. 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:lang` **Language** The language of the intellectual content of the element for which this is an attribute. Typical values are described by the IETF RFC 5646, two-letter, lower-case language codes such as "`fr`" (French), "`en`" (English), "`de`" (German), and "`zh`" (Chinese). These values are **NOT** case sensitive, but current best practice uses all lower case. Values can be obtained from the IANA Language Subtag Registry: http://www.iana.org/assignments/language-subtag-registry.

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Archiving	Publishing	Authoring	`@attr` **Attribute name** Attribute definition
✓	✓	✓	`@xml:space` **Space** When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.
✓	✓	✓	`@xref` **Cross-Reference (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).
✓	✓	✓	`@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:schemaLocation` **Schema Location (MathML 2.0 Tag Set)** Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).
✓	✓	✓	`@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

8.1 Rationale

The Journal Archiving and Interchange Tag Set ("Archiving") defines elements and attributes that describe the content and metadata of journal articles, including research and non-research articles, letters, editorials, and book and product reviews. The Tag Set allows for descriptions of the full article content or just the article header metadata.

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

It was planned that Archiving could be used for conversion from a variety of journal source Tag Sets, with the intent of providing a single format:

- in which publishers could deliver their content to a wide range of archives, and
- into which archives could conveniently translate content from many publishers.

In order to enable description of the content used by the wide array of publishers, repositories, aggregators, etc., the Tag Set uses many loose structures, including some elements with nearly all content structures optional. Many attribute values in the Tag Set are data character values, accommodating any source values. Because some article components are prescriptive in nature (article metadata, for example, is a fairly specific sequence) the Archiving and Interchange Tag Set includes a few completely generic structures for capturing semantic tagging that is not available natively in the Tag Set. Although publication order cannot always be preserved, particularly within the metadata, the Archiving and Interchange Tag Set works harder than any of the other Tag Sets in this Suite to allow almost any publication arrangement and to allow re-tagging as renaming without rearrangement during conversion.

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The Archiving and Interchange Tag Set has a distinct focus on conversion from multiple sources. That focus has made this Tag Set a large and inclusive one. Many elements have been created explicitly so that information tagged by publishers would not be discarded when they converted material from another Tag Set to this one (or one created from this Suite). Care has also been taken to provide several mechanisms (frequently, information classing attributes) to preserve the intellectual content of a document structure when that structure is converted from another Tag Set or schema to this one, even when there is no exact element equivalent of the structure.

The exact replication of the look and feel of any particular journal has not been a consideration. Therefore, many purely formatting mechanisms have not been included. At the same time, Archiving is intended to preserve observed content, without resorting to stylesheets or generation of textual elements. For that reason, labels, numbers, and symbols of tables, figures, sidebars, and the like can be recorded as elements, as can the punctuation and spaces inside bibliographic references and lists.

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 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:

- 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 and its back matter (such as tables, figures, boxed text sidebars, etc.) into a separate container element outside the narrative flow for convenience of processing.
- 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.

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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:
    - 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 http://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**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**

    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**

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    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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 **Identifier**
@specific-use **Specific Use**
@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**
            - <array> **Array (Simple Tabulation)**
            - <boxed-text> **Boxed Text**
            - <chem-struct-wrap> **Chemical Structure Wrapper**
            - <fig> **Figure**
            - <fig-group> **Figure Group**
            - <graphic> **Graphic**
            - <media> **Media Object**
            - <preformat> **Preformatted Text**
            - <supplementary-material> **Supplementary Material**
            - <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 2.0 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:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <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, 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 **Identifier**
@specific-use **Specific Use**
@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**

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        - <array> **Array (Simple Tabulation)**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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)**

8.4.6 <addr-line> Address Line

One physical or logical line of an address.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <country> **Country: in an Address**
- <fax> **Fax Number: in an Address**
- <institution> **Institution Name: in an Address**
- <phone> **Phone Number: in an Address**

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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Address Elements
    - <addr-line> **Address Line**
    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <phone> **Phone Number: in an Address**
- 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**

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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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <phone> **Phone Number: in an Address**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

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- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

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 **Identifier**

Content model:

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

8.4.10 <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 graphic or figure.

Attributes:

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

Content model:

Text, numbers, or special characters

8.4.11 <alt-title> Alternate Title

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

Attributes:

@alt-title-type **Type of Alternate Title**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**

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- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.12 <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.

Content model:

One or more of any of:

- <array> **Array (Simple Tabulation)**
- <chem-struct> **Chemical Structure (Display)**
- <graphic> **Graphic**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material**
- <table> **Table (NISO JATS table model)**
- <textual-form> **Textual Form**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**

8.4.13 <annotation> Annotation in a Citation

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

8.4.14 <anonymous> Anonymous

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

Attributes:

`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.15 <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**

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`@id` **Identifier**
`@specific-use` **Specific Use**
`@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**
      - `<array>` **Array (Simple Tabulation)**
      - `<boxed-text>` **Boxed Text**
      - `<chem-struct-wrap>` **Chemical Structure Wrapper**
      - `<fig>` **Figure**
      - `<fig-group>` **Figure Group**
      - `<graphic>` **Graphic**
      - `<media>` **Media Object**
      - `<preformat>` **Preformatted Text**
      - `<supplementary-material>` **Supplementary Material**
      - `<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 2.0 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

8.4.16 `<app-group>` Appendix Group

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

Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@specific-use` **Specific Use**
`@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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)**

8.4.17 <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 **Identifier**
@orientation **Orientation**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- Any combination of:
  - <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:

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    - Any combination of:
        - `<alternatives>` **Alternatives For Processing**
        - `<graphic>` **Graphic**
        - `<media>` **Media Object**
    - `<tbody>` **Table Body (NISO JATS table model)**
- Any combination of:
    - `<attrib>` **Attribution**
    - `<permissions>` **Permissions**

8.4.18 `<article>` Article

A journal article.

Attributes:

`@article-type` **Type of Article**
`@dtd-version` **Version of the Tag Set (DTD)**
`@specific-use` **Specific Use**
`@xmlns:mml` **MathML Namespace Declaration**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xmlns:xsi` **XML Schema Namespace Declaration**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<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

8.4.19 `<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.

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

8.4.20 `<article-id>` Article Identifier

Unique identifier assigned to an article.

Attributes:

`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters

8.4.21 `<article-meta>` Article Metadata

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

Content model:

The following, in order:

- `<article-id>` **Article Identifier**, zero or more
- `<article-categories>` **Article Grouping Data**, zero or one
- `<title-group>` **Title Group**, zero or one
- Any combination of:

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    - <contrib-group> **Contributor Group**
    - <aff> **Affiliation**
    - <aff-alternatives> **Affiliation Alternatives**
    - <x> **X - Generated Text and Punctuation**
- <author-notes> **Author Note Group**, zero or one
- <pub-date> **Publication Date**, zero or more
- <volume> **Volume Number**, zero or one
- <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-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one
- <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**
- <history> **History: Document 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
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

8.4.22 <article-title> Article Title

Full title of an article.

Attributes:

@id **Identifier**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**

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- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.23 <attrib> Attribution

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.24 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

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

Content model:

The following, in order:

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

8.4.25 <author-notes> Author Note Group

Container element for notes about the article's contributors.

Attributes:

@id **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**

Content model:

The following, in order:

- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one
- <title> **Title**, zero or one

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- One or more of any of:
  - <corresp> **Correspondence Information**
  - <fn> **Footnote**
  - <p> **Paragraph**
  - <x> **X - Generated Text and Punctuation**

8.4.26 <award-group> Award Group

Container element for information concerning one award under which the work (or the research on which the work was based) was supported.

Attributes:

@award-type **Type of Award**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

The following, in order:

- <funding-source> **Funding Source**, zero or more
- <award-id> **Award Identifier**, zero or more
- <principal-award-recipient> **Principal Award Recipient**, zero or more
- <principal-investigator> **Principal Investigator**, zero or more

8.4.27 <award-id> Award Identifier

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

Attributes:

@award-type **Type of Award**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements

    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.28 <back> Back Matter

Material published with an article but following the narrative flow.

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**

8.4.29 <bio> Biography

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

Attributes:

@content-type **Type of Content**
@id **Identifier**
@rid **Reference to an Identifier**
@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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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**
    - `<array>` **Array (Simple Tabulation)**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<supplementary-material>` **Supplementary Material**
    - `<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 2.0 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)**

8.4.30 <body> Body of the Document

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

Attributes:

`@specific-use` **Specific Use**

Content model:

The following, in order:

- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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

8.4.31 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**
  - <roman> **Roman**

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    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.32 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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**
        - <array> **Array (Simple Tabulation)**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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:
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.33 <break> Line Break

An explicit line break in the text.

Content model:

This is an EMPTY element

8.4.34 <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>).

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

8.4.35 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter.

Attributes:

@specific-use **Specific Use**
@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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.36 <chem-struct> Chemical Structure (Display)

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- <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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

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8.4.37 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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
- Any combination of:
  - <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)**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <textual-form> **Textual Form**
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

8.4.38 <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.

Content model:

One or more of any of:

- Citation Elements
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**

8.4.39 <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> these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHMTL 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 **Identifier**
@span **Span (NISO JATS table model)**

`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@width` **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

This is an EMPTY element

8.4.40 <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 XHMTL `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` **Identifier**
`@span` **Span (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**
`@width` **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

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

8.4.41 <collab> Collaborative (Group) Author

Group of contributors credited under a single name; includes an organization credited as a contributor.

Attributes:

`@collab-type` **Type of Collaboration**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Address Elements
  - <addr-line> **Address Line**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <phone> **Phone Number: in an Address**
- <hr> **Horizontal Rule**
- <break> **Line Break**
- <contrib-group> **Contributor Group**
- <address> **Address/Contact Information**
- <aff> **Affiliation**

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- <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**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.42 <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.

Content model:

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

8.4.43 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.44 `<compound-kwd>` Compound Keyword

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

Attributes:

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

Content model:

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

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8.4.45 <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**

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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.46 <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:

@content-type **Type of Content**

@id **Identifier**

Content model:

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

8.4.47 <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**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

8.4.48 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**

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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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.49 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- <day> **Day**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- <x> **X - Generated Text and Punctuation**

8.4.50 <conf-loc> Conference Location

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.51 <conf-name> Conference Name

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.52 <conf-num> Conference Number

Sequential number of a conference.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**

- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.53 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.54 <conf-theme> Conference Theme

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.55 <conference> Conference Information

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

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

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**

8.4.56 <contrib> Contributor

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

Attributes:

@contrib-type **Type of Contribution**
@corresp **Corresponding Author**

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`@deceased` **Deceased**
`@equal-contrib` **Equal Contribution**
`@id` **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**
`@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**

8.4.57 `<contrib-group>` Contributor Group

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

Attributes:

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

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**

8.4.58 <contrib-id> Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element will hold an ORCID, a trusted publisher's identifier, a JST (Japanese Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:

@content-type **Type of Content**
@contrib-id-type **Contributor Identifier Type**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

8.4.59 <copyright-holder> Copyright Holder

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.60 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**

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    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.61 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

8.4.62 <corresp> Correspondence Information

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements
    - <addr-line> **Address Line**
    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <phone> **Phone Number: in an Address**
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**

    - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <label> **Label (of an Equation, Figure, Reference, etc.)**

8.4.63 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

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

8.4.64 <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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Attributes:

`@count` **Count**
`@count-type` **Count Type**

Content model:

This is an EMPTY element

8.4.65 <counts> Counts

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

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

8.4.66 <custom-meta> Custom Metadata

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

Attributes:

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

Content model:

The following, in order:

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

8.4.67 <custom-meta-group> Custom Metadata Group

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

Content model:

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

8.4.68 <date> Date

Container element for the parts of a single calendar date.

Attributes:

`@calendar` **Calendar**
`@date-type` **Type of Date**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@publication-format` **Format of Publication**
`@specific-use` **Specific Use**

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
- <string-date> **Date as a String**, zero or one

8.4.69 <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**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <day> **Day**
- <month> **Month**
- <season> **Season**
- <year> **Year**
- Emphasis Elements
    - <bold> **Bold**
    - <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**

8.4.70 <day> Day

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.71 <def> Definition List: Definition

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

Attributes:

@id **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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Content model:

Any one of:

- <p> **Paragraph**, one or more

8.4.72 <def-head> Definition List: Definition Head

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.73 <def-item> Definition List: Definition Item

Container element for one term/definition pair in a definition list.

Attributes:

@id **Identifier**
@specific-use **Specific Use**

`@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**

8.4.74 `<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` **Identifier**
`@list-content` **List Content**
`@list-type` **Type of List**
`@prefix-word` **Prefix Word (For a List Item)**
`@specific-use` **Specific Use**
`@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**
- `<def-list>` **Definition List**, zero or more

8.4.75 `<degrees>` Degree(s)

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<overline-start>` **Overline Start**
  - `<overline-end>` **Overline End**
  - `<roman>` **Roman**

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    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.76 <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 **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <alt-text> **Alternate Text Name (for a figure, etc.)**
- <long-desc> **Long Description**
- <break> **Line Break**
- <attrib> **Attribution**
- <permissions> **Permissions**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

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

Container element for equations or other mathematical expressions.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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:
    - <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**

8.4.78 <disp-quote> Quote, Displayed

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

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Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@specific-use` **Specific Use**
`@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**
    - `<array>` **Array (Simple Tabulation)**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<supplementary-material>` **Supplementary Material**
    - `<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 2.0 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:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

8.4.79 `<edition>` Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

`@content-type` **Type of Content**
`@designator` **Designator of the Edition**
`@specific-use` **Specific Use**
`@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.80 <element-citation> Element Citation

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

Attributes:

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

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Content model:

One or more of any of:

- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- <string-date> **Date as a String**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**

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- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.81 <location-id> Electronic Location Identifier

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

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

8.4.82 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.83 `<equation-count>` Equation Count

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

Attributes:

`@count` **Count**

Content model:

This is an EMPTY element

8.4.84 <etal> Et Al.

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

Attributes:

@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.85 <ext-link> External Link

Link to an external file or resource.

Attributes:

@ext-link-type **Type of External Link**

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`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.86 `<fax>` Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.87 `<fig>` Figure

Block of graphic 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` **Identifier**
`@orientation` **Orientation**
`@position` **Position**

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`@specific-use` **Specific Use**
`@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 more
- Any combination of:
  - `<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)**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
- Any combination of:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

8.4.88 `<fig-count>` Figure Count

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

Attributes:

`@count` **Count**

Content model:

This is an EMPTY element

8.4.89 `<fig-group>` Figure Group

Container element for figures that are to be displayed together.

Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@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:
  - <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**
  - <alternatives> **Alternatives For Processing**
  - <graphic> **Graphic**
  - <media> **Media Object**

8.4.90 <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.

Content model:

Any combination of:
- <alternatives> **Alternatives For Processing**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <fig> **Figure**
- <fig-group> **Figure Group**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material**
- <table-wrap> **Table Wrapper**
- <table-wrap-group> **Table Wrapper Group**

8.4.91 <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:

@fn-type **Type of Footnote**
@id **Identifier**
@specific-use **Specific Use**
@symbol **Symbol**
@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

8.4.92 <fn-group> Footnote Group

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

Attributes:

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

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one

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- `<title>` **Title**, zero or one
- One or more of any of:
  - `<fn>` **Footnote**
  - `<x>` **X - Generated Text and Punctuation**

8.4.93 `<fpage>` First Page

Page number on which a document starts.

Attributes:

`@content-type` **Type of Content**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

8.4.94 `<front>` Front Matter

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

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**

8.4.95 `<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.

Content model:

The following, in order:
- `<article-id>` **Article Identifier**, zero or more
- `<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
- `<pub-date>` **Publication Date**, zero or more
- `<volume>` **Volume Number**, zero or one
- `<volume-id>` **Volume Identifier**, zero or more
- `<volume-series>` **Volume Series**, zero or one
- `<issue>` **Issue Number**, zero or one
- `<issue-id>` **Issue Identifier**, zero or more
- `<issue-title>` **Issue Title**, zero or more
- `<issue-sponsor>` **Issue Sponsor**, zero or more
- `<issue-part>` **Issue Part**, zero or one

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- <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**
- <history> **History: Document 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
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

8.4.96 <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:

@specific-use **Specific Use**
@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

8.4.97 <funding-source> Funding Source

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

Attributes:

@country **Country**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**

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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)**
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.98 `<funding-statement>` Funding Statement

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

Attributes:

`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<award-id>` **Award Identifier**
- `<funding-source>` **Funding Source**
- `<open-access>` **Open Access**

8.4.99 `<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.

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Attributes:

`@initials` **Initials for Personal Names**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
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  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.100 `<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` **Identifier**
`@specific-use` **Specific Use**
`@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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

8.4.101 <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 **Identifier**
@resolution **Resolution of the Glyph Bitmap**
@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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8.4.102 <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**

Content model:

This is an EMPTY element

8.4.103 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**

    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**

8.4.104 <graphic> Graphic

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- <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)**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <caption> **Caption of a Figure, Table, etc.**
- <attrib> **Attribution**
- <permissions> **Permissions**

8.4.105 <history> History: Document History

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements

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    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <date> **Date**
- <string-date> **Date as a String**

8.4.106 <hr> Horizontal Rule

An explicit horizontal rule.

Content model:

This is an EMPTY element

8.4.107 <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 **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.108 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

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Content model:

Any one of:

- <alt-text> **Alternate Text Name (for a figure, etc.)**, zero or one

8.4.109 <inline-supplementary-material> Inline Supplementary Material

Description of and inline pointer to an external file that provides supplementary information for the document.

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**

    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.110 <institution> Institution Name: in an Address

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**

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    - <mml:math> **Math (MathML 2.0 Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <break> **Line Break**

8.4.111 <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:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

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

8.4.112 <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:

@specific-use **Specific Use**

Content model:

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

8.4.113 <issn> ISSN

International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:

@pub-type **Type of Publication**
@specific-use **Specific Use**

Content model:

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

8.4.114 <issue> Issue Number

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

Attributes:

@content-type **Type of Content**
@seq **Sequence**

`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.115 `<issue-id>` Issue Identifier

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

Attributes:

`@content-type` **Type of Content**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

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8.4.116 <issue-part> Issue Part

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.117 <issue-sponsor> Issue Sponsor

Sponsor for an issue of the journal.

Attributes:

@content-type **Type of Content**

`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.118 `<issue-title>` Issue Title

Theme or special title for a journal issue.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.119 <italic> Italic

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

Attributes:

@specific-use **Specific Use**

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

- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.120 <journal-id> Journal Identifier

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

Attributes:

@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.121 <journal-meta> Journal Metadata

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

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**

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- <issn> **ISSN**, 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

8.4.122 <journal-subtitle> Journal Subtitle (Full)

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**

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

8.4.123 <journal-title> Journal Title (Full)

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.124 <journal-title-group> Journal Title Group

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

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Attributes:

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

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

8.4.125 <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 the 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:

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

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**

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

8.4.126 <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:

@id **Identifier**
@kwd-group-type **Keyword Authority**
@specific-use **Specific Use**
@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**

8.4.127 <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**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.128 <license> License Information

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

Attributes:

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

Content model:

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

8.4.129 <license-p> License Paragraph

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <array> **Array (Simple Tabulation)**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <table-wrap> **Table Wrapper**
  - <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <citation-alternatives> **Citation Alternatives**
- Citation Elements
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- <award-id> **Award Identifier**

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- <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**

8.4.130 <list> List

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

Attributes:

@continued-from **Continued From**
@id **Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@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:
  - <list-item> **List Item**
  - <x> **X - Generated Text and Punctuation**

8.4.131 <list-item> List Item

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@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**
  - Lists
    - <def-list> **Definition List**
    - <list> **List**

8.4.132 <long-desc> Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box.

Attributes:

@content-type **Type of Content**
@id **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

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

8.4.133 `<lpage>` Last Page

Page number on which a document ends.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

8.4.134 `<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**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- `<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)**
- `<object-id>` **Object Identifier**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- `<caption>` **Caption of a Figure, Table, etc.**
- `<attrib>` **Attribution**
- `<permissions>` **Permissions**

8.4.135 `<meta-name>` Metadata Data Name for Custom Metadata

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

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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements

    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.137 <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 **Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

This is an EMPTY element

8.4.138 <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 **Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**

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`@xml:lang` **Language**

Content model:

This is an EMPTY element

8.4.139 `<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:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- `<string-date>` **Date as a String**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<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 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

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

8.4.140 <mml:math> Math (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

Attributes:

@altimg **Alternate Image (MathML 2.0 Tag Set)**
@alttext **Alternate Text (MathML 2.0 Tag Set)**
@baseline **Baseline (MathML 2.0 Tag Set)**
@class **Class (MathML 2.0 Tag Set)**
@display **Display (MathML 2.0 Tag Set)**
@height **Height (MathML 2.0 Tag Set)**
@id **Identifier**
@macros **Macros (MathML 2.0 Tag Set)**
@mode **Mode (MathML 2.0 Tag Set)**
@name **Name**
@other **Other (MathML 2.0 Tag Set)**
@overflow **Overflow (MathML 2.0 Tag Set)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@type **Type (MathML 2.0 Tag Set)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**
@xlink:href **Href (Linking Mechanism)**
@xlink:type **Type of Link**
@xmlns:mml **MathML Namespace Declaration**
@xref **Cross-Reference (MathML 2.0 Tag Set)**
@xsi:schemaLocation **Schema Location (MathML 2.0 Tag Set)**

8.4.141 <monospace> Monospace Text (Typewriter Text)

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

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.142 <month> Month

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.143 <name> Name of Person

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

Attributes:

@content-type **Type of Content**
@name-style **Name Style**
@specific-use **Specific Use**
@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

8.4.144 <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).

Content model:

Any one of:

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

8.4.145 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**

    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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**

8.4.146 <nested-kwd> Nested Keyword

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

Attributes:

@content-type **Type of Content**
@id **Identifier**

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

8.4.147 <nlm-citation> NLM Citation

This element is deprecated; avoid using it. Use <element-citation>.

Attributes:

@id **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**

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`@xlink:type` **Type of Link**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

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

8.4.148 `<note>` Note in a Reference List

Non-citation content inside a bibliographic reference list.

Attributes:

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

8.4.149 <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 **Identifier**
@notes-type **Type of Notes**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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)**

8.4.150 <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:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**

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`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters

8.4.151 <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:

`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.152 <open-access> Open Access

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

8.4.153 <overline> Overline

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

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**

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

8.4.154 <overline-end> Overline End

Milestone indicating the end of overline emphasis.

Attributes:

@rid **Reference to an Identifier**
@specific-use **Specific Use**

Content model:

This is an EMPTY element

8.4.155 <overline-start> Overline Start

Milestone indicating the beginning of overline emphasis.

Attributes:

@id **Identifier**
@specific-use **Specific Use**

Content model:

This is an EMPTY element

8.4.156 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements

    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <table-wrap> **Table Wrapper**
    - <table-wrap-group> **Table Wrapper Group**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <citation-alternatives> **Citation Alternatives**
- Citation Elements
    - <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**

8.4.157 <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**

Content model:

This is an EMPTY element

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8.4.158 <page-range> Page Ranges

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

8.4.159 <part-title> Part Title in a Citation

Title of part of a book (for example, chapter, module) described in a bibliographic reference.

Attributes:

@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

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

8.4.160 <patent> Patent Number, Cited

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

Attributes:

@content-type **Type of Content**
@country **Country**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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8.4.161 <permissions> Permissions

Container element for copyright and license information.

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
- <license> **License Information**, zero or more

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

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

Attributes:

@id **Identifier**
@person-group-type **Type of People in the Person Group**
@specific-use **Specific Use**
@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**
- <x> **X - Generated Text and Punctuation**

8.4.163 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <overline-start> **Overline Start**
  - <overline-end> **Overline End**

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    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.164 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**

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    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.165 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@preformat-type **Type of Preformatted Text**
@specific-use **Specific Use**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- <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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <attrib> **Attribution**
- <permissions> **Permissions**

8.4.166 <price> Price

Sale price or licensing fees of a work.

Attributes:

@content-type **Type of Content**
@currency **Currency**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <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**

8.4.167 <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).

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Attributes:

`@specific-use` **Specific Use**
`@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**
- `<string-name>` **Name of Person (Unstructured)**

8.4.168 `<principal-investigator>` Principal Investigator

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

Attributes:

`@specific-use` **Specific Use**
`@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)**

8.4.169 `<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**
`@name` **Name**
`@specific-use` **Specific Use**

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

8.4.170 `<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:

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

`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- `<break>` **Line Break**
- `<string-date>` **Date as a String**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<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 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<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-date>` **Conference Date**
- `<conf-loc>` **Conference Location**
- `<conf-name>` **Conference Name**
- `<conf-sponsor>` **Conference Sponsor**
- `<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**

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- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.171 <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:

@calendar **Calendar**
@date-type **Type of Date**
@iso-8601-date **ISO-8601 Formatted Date**
@pub-type **Type of Publication**
@publication-format **Format of Publication**
@xml:lang **Language**

Content model:

Any combination of:

- <day> **Day**
- <month> **Month**

- <year> **Year**
- <season> **Season**
- <string-date> **Date as a String**
- <x> **X - Generated Text and Punctuation**

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

Identifier of a publication in a bibliographic reference or product.

Attributes:

@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

8.4.173 <publisher> Publisher

Container element for information about the person, company, or other entity that published a work.

Attributes:

@content-type **Type of Content**

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

8.4.174 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <phone> **Phone Number: in an Address**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.175 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

Attributes:

@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**

- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.176 <ref> Reference Item

One item in a bibliographic list.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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-alternatives> **Citation Alternatives**
  - Citation Elements
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**
  - <note> **Note in a Reference List**
  - <x> **X - Generated Text and Punctuation**

8.4.177 <ref-count> Reference Count

Number of references or citations that appear in a bibliographic reference list.

Attributes:

@count **Count**

Content model:

This is an EMPTY element

8.4.178 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

Attributes:

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

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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 one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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

8.4.179 <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**
@id **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**

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

Content model:

Any combination of:

- Text, numbers, or special characters
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- `<break>` **Line Break**
- `<string-date>` **Date as a String**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<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 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<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-date>` **Conference Date**
- `<conf-loc>` **Conference Location**
- `<conf-name>` **Conference Name**
- `<conf-sponsor>` **Conference Sponsor**
- `<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)**

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- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.180 <related-object> Related Object Information

Description of an object (for example, book chapter, figure, table) related to the content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**
@ext-link-type **Type of External Link**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- <break> **Line Break**
- <string-date> **Date as a String**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**

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- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.181 <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` **Identifier**
`@response-type` **Type of Response**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

The following, in order:

- 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

8.4.182 `<role>` Role or Function Title of Contributor

Title or role of a contributor to a work (for example, editor-in-chief, chief scientist, photographer, research associate).

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**

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- <milestone-start> **Milestone Start**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

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

8.4.183 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**

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

8.4.184 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.185 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

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Attributes:

`@specific-use` **Specific Use**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

8.4.186 <season> Season

Season of publication (for example, Spring, Third Quarter).

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

8.4.187 <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 **Identifier**
@sec-type **Type of Section**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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)**

8.4.188 <sec-meta> Section Metadata

Container element for section-level metadata that is different from the parent document.

Content model:

The following, in order:

- <contrib-group> **Contributor Group**, zero or more

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- <kwd-group> **Keyword Group**, zero or more
- <permissions> **Permissions**, zero or one

8.4.189 <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, printed article and in its expanded version with additional graphics available online).

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**

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

8.4.190 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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8.4.191 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.192 <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**

`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.193 `<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` **Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@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)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <graphic> **Graphic**
- <media> **Media Object**

8.4.194 <sig-block> Signature Block

Area of text and graphic 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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<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**

8.4.195 `<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).

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Attributes:

@specific-use **Specific Use**
@units **Units**
@xml:lang **Language**

Content model:

Any combination of:

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

8.4.196 <source> Source

Title of a document (for example, journal, book, conference proceedings) that contains (is the source of) the material being cited in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**

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- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.197 <speaker> Speaker

One who utters one segment of a speech or dialog.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

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- <x> **X - Generated Text and Punctuation**
- <degrees> **Degree(s)**
- <given-names> **Given (First) Names**
- <prefix> **Prefix**
- <surname> **Surname**
- <suffix> **Suffix**

8.4.198 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:
- <speaker> **Speaker**
- <p> **Paragraph**, one or more

8.4.199 <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 **Identifier**
@specific-use **Specific Use**
@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
- <p> **Paragraph**, one or more
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

8.4.200 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <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**
- <sub> **Subscript**
- <sup> **Superscript**

8.4.201 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**

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    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.202 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**

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    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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**

8.4.203 <string-date> Date as a String

Date represented as text.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**

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- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <day> **Day**
- <month> **Month**
- <season> **Season**
- <year> **Year**

8.4.204 <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**
@name-style **Name Style**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**

    - <mml:math> **Math (MathML 2.0 Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - <degrees> **Degree(s)**
  - <given-names> **Given (First) Names**
  - <prefix> **Prefix**
  - <surname> **Surname**
  - <suffix> **Suffix**

8.4.205 <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**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@style-type **Style Type**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**

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    - <private-char> **Private Character (Custom or Unicode)**
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
  - Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**
  - <x> **X - Generated Text and Punctuation**
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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**

8.4.206 <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 **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**

- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.207 <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**
@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**

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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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.208 <sub-article> Sub-article

An article that is completely contained inside another article.

Attributes:

@article-type **Type of Article**
@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- 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

8.4.209 <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:

`@specific-use` **Specific Use**
`@subj-group-type` **Type of Subject Group**
`@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

8.4.210 `<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:

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

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**

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

8.4.211 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

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

8.4.212 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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8.4.213 <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**
`@specific-use` **Specific Use**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**
- `<break>` **Line Break**

8.4.214 <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:

@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <contrib-group> **Contributor Group**
- <title> **Title**

8.4.215 <supplementary-material> Supplementary Material

Container element for description of and pointer to additional data files that contain information directly supportive of the document (for example, audio clip, applet, raw research data).

Attributes:

@content-type **Type of Content**

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`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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 more
- Any combination of:
  - `<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)**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
- Any combination of:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

8.4.216 `<surname>` Surname

Surname of a person.

Attributes:

`@initials` **Initials for Personal Names**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.217 <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 XHMTL `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 **Identifier**
@rules **Rules (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@summary **Summary (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

The following, in order:

- Any one of:

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    - <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

8.4.218 <table-count> Table Count

Number of <table-wrap> elements that appear in the document.

Attributes:

@count **Count**

Content model:

This is an EMPTY element

8.4.219 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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
- Any combination of:
    - <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**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <table> **Table (NISO JATS table model)**
- Any combination of:
    - <table-wrap-foot> **Table Wrapper Footer**
    - <attrib> **Attribution**
    - <permissions> **Permissions**

8.4.220 <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.

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**
  - <attrib> **Attribution**
  - <permissions> **Permissions**
  - <x> **X - Generated Text and Punctuation**

8.4.221 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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:
  - <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)**
- <table-wrap> **Table Wrapper**, one or more

8.4.222 <target> Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@target-type **Type of Target**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**

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- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.223 <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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

8.4.224 <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 XHMTL 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` **Identifier**
`@rowspan` **Row Span (NISO JATS table model)**
`@scope` **Scope (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<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**

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- <citation-alternatives> **Citation Alternatives**
- Citation Elements
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**
- Lists
  - <def-list> **Definition List**
  - <list> **List**
- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.225 <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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements

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    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.226 <term-head> Definition List: Term Head

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**

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

8.4.227 <tex-math> TeX Math Equation

Used to hold encoded math, expressed in TeX or LaTeX.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@notation **Notation**
@version **Version of TeX or LaTeX**

Content model:

Text, numbers, or special characters

8.4.228 <textual-form> Textual Form

This element holds text (mixed content) in places where alternatives can be presented, providing a textual alternative. For example, inside the <alternatives> wrapper element, a <textual-form> can provide an alternative version of an equation, graphic, or table. This alternative textual version may be a direct textual representation of an object (such as a Unicode value for a special character or the full text of an equation in ASCII characters), or a simplified textual version of the object (for display by devices not able to cope with the object), or a text-dump of the contents of a binary object (for example, the full text-dump of the cells of a table to accompany a graphical version of the table).

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <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 2.0 Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

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- <sub> **Subscript**
- <sup> **Superscript**

8.4.229 <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 XHMTL 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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

8.4.230 <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 XHMTL 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 **Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**

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    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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-alternatives> **Citation Alternatives**
- Citation Elements
    - <element-citation> **Element Citation**
    - <mixed-citation> **Mixed Citation**
    - <nlm-citation> **NLM Citation**
- Lists
    - <def-list> **Definition List**
    - <list> **List**
- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

8.4.231 <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 XHMTL 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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

8.4.232 <time-stamp> Time Stamp for Cited Work

This element is deprecated; avoid using it. Use <date-in-citation>.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**

Content model:

Any combination of:

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

8.4.233 `<title>` Title

Heading or title for a structural element (for example, `<sec>`, `<app>`, `<boxed-text>`).

Attributes:

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

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**

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- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**
- <citation-alternatives> **Citation Alternatives**
- Citation Elements
  - <element-citation> **Element Citation**
  - <mixed-citation> **Mixed Citation**
  - <nlm-citation> **NLM Citation**

8.4.234 <title-group> Title Group

Container element to hold the various titles for a document or a document component.

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

8.4.235 <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 XHMTL 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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

One or more of any of:

- <th> **Table Header Cell (NISO JATS table model)**
- <td> **Table Data Cell (NISO JATS table model)**

8.4.236 <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 **Identifier**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**

        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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)**

8.4.237 <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 **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <overline-start> **Overline Start**
    - <overline-end> **Overline End**

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    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.238 <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:

@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.239 <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 **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**

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    - <underline-start> **Underline Start**
    - <underline-end> **Underline End**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.240 <trans-title-group> Translated Title Group

Container element for translated and transliterated titles.

Attributes:

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

Content model:

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

8.4.241 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@specific-use **Specific Use**
@underline-style **Appearance of the Underline**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.242 <underline-end> Underline End

Milestone indicating the end of underlined text.

Attributes:

@rid **Reference to an Identifier**
@specific-use **Specific Use**

Content model:

This is an EMPTY element

8.4.243 <underline-start> Underline Start

Milestone indicating the start of underlined text.

Attributes:

@id **Identifier**
@specific-use **Specific Use**

Content model:

This is an EMPTY element

8.4.244 <unstructured-kwd-group> Unstructured Keyword Group

Contains multiple keywords that are not tagged individually.

Attributes:

@id **Identifier**
@kwd-group-type **Keyword Authority**

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`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<x>` **X - Generated Text and Punctuation**

8.4.245 `<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>http://www.mulberrytech.com</uri>`).

Attributes:

`@content-type` **Type of Content**
`@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**
@xmlns:xlink **XLink Namespace Declaration**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.246 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:

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

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`@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:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

8.4.247 `<verse-line>` Line of a Verse

One line of a poem or verse.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<hr>` **Horizontal Rule**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**

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

8.4.248 <volume> Volume Number

Number of a journal (or other document) within a series.

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

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

8.4.249 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

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8.4.250 <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**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.251 <word-count> Word Count

The approximate number of words that appear in a document or document component.

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Attributes:

@count **Count**

Content model:

This is an EMPTY element

8.4.252 <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**
@specific-use **Specific Use**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**

8.4.253 <xref> X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

@alt **Alternative Text**
@id **Identifier**
@ref-type **Type of Cross-Reference**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <hr> **Horizontal Rule**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <x> **X - Generated Text and Punctuation**
- <break> **Line Break**

8.4.254 <year> Year

Numerical, 4-digit year.

Attributes:

@calendar **Calendar**
@content-type **Type of Content**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@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.

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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 XHMTL `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.

8.5.3 `@abstract-type` Type of Abstract

Type or style of abstract as identified by the publisher (for example, "`short`", "`graphic`", "`ASCII`", "`stereochemical`").

The Tag Set does not prescribe values for this attribute, so any type of abstract that a publisher records can be preserved.

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 XHMTL `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 textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

8.5.6 @altimg Alternate Image (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.7 @alttext Alternate Text (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.8 @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.

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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`".

8.5.9 `@arrange` Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts or 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 or superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts or superscripts should be stretched out in a line.

8.5.10 `@article-type` Type of Article

Type or kind of article (for example, "`research`", "`commentary`", "`review`", "`case`", or "`calendar`").

This attribute can be used to attach information classes to articles for grouping or searching. An archive may use this, for example, to preserve the publisher's classification of an article.

Use for primary article — When the article is a commentary on another article (for example, a correction or addendum), this attribute contains metadata concerning the commentary itself; it does *not* define the kind of article that is being corrected or amended.

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`".

8.5.11 `@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`".

8.5.12 `@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 XHMTL `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.

8.5.13 `@baseline` Baseline (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.14 @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.

8.5.15 @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 XHMTL 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.

8.5.16 @calendar Calendar

Name of the calendar used in naming a date such as a publication date, for example, "Gregorian", "Japanese" (Emperor years), or "Islamic".

In elements <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".

8.5.17 @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 XHMTL 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.

8.5.18 @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 XHMTL 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.

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8.5.19 `@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 XHMTL `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.

8.5.20 `@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 XHMTL `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).

8.5.21 `@class` Class (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, number, or special characters	Use MathML documentation.

8.5.22 `@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`”.

8.5.23 `@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 XHMTL `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`”.

8.5.24 @content-type Type of Content

Subject or type of content that makes this element semantically distinct.

In element <named-content>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the distinct function for the <named-content> that cannot otherwise be described by the elements in this Suite. For example, a medical article might use the value "body-system" or "gene" while a management article might use the value "product-name" or "stock-code".

In elements <abbrev>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <alt-text>, <annotation>, <app>, <app-group>, <array>, <author-comment>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <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-group>, <contrib-id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <date-in-citation>, <day>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <elocation-id>, <email>, <fax>, <fig-group>, <fn-group>, <fpage>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <isbn>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <p>, <page-range>, <patent>, <phone>, <prefix>, <price>, <publisher>, <ref>, <ref-list>, <related-object>, <role>, <season>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <statement>, <std>, <string-conf>, <string-date>, <string-name>, <std-organization>, <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>, <volume>, <volume-id>, <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.

8.5.25 @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.

8.5.26 @contrib-id-type Contributor Identifier Type

Names the type of contributor identifier or the authority that is responsible for the creation of the contributor identifier.

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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".

8.5.27 @contrib-type Type of Contribution

Type of contribution made by the individual (for example, "author", "editor", "illustrator", "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".

8.5.28 @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.

8.5.29 @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.

8.5.30 @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, "contributor" when counting the number of authors or "image" for the number of images.

8.5.31 @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>, and <patent>, 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.

8.5.32 @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.

8.5.33 @date-type Type of Date

Event in the lifecycle of an article that this date is marking (for example, the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In this version of this Tag Set, there are two attributes that can be used to describe history dates and publication dates of articles. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media, for example, "print", to which the event happened. In previous versions of this Tag Set, the two types of information were combined, so an attribute could say that an article was "ecorrected", meaning that the article was in electronic form and that it was corrected. In this Tag Set, the attribute @date-type would take the value "corrected" and the @publication-format attribute would take the value "electronic" to convey the same information.

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.

8.5.34 @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.

8.5.35 @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".

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8.5.36 @designator Designator of the Edition

The edition number as an unadorned numeric or alphabetic value.

In element <edition>, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character that indicates the edition number	The straight unadorned edition number, for machine processing. Typically this is a number such as "4" or an alphabetic character such as "A".

8.5.37 @display Display (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.38 @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.

8.5.39 @document-id Document Identifier

Identifier of a document 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>).

8.5.40 @document-id-type Document Identifier Type

Type of document identifier (for example, a DOI, PII, or a publisher's identifier).

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of document identifier involved for a related object (<related-object>).

8.5.41 @document-type Document Type

Type of document being described by 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 type of related object, for example, "`article`" for a journal article.

8.5.42 `@dtd-version` Version of the Tag Set (DTD)

Version of the Tag Set that should be used to validate this article.

In element `<article>`, this attribute *must* have the value `1.0` (as given below).

Value	Meaning
1.0	The NISO JATS 1.0 version of the Journal Archiving and Interchange Tag Set is being used.

8.5.43 `@elocation-id` Elocation Identifier

Bibliographic identifier for a document 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.

8.5.44 `@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.

8.5.45 `@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`"), 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, "`ftp`" or "`uri`".

8.5.46 `@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`".

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8.5.47 `@fn-type` Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

There are many reasons why the text or metadata of an article might be footnoted. Where those reasons are known (for example, the reasons are listed in the suggested values list below), this attribute can preserve that information. This could be a means of preserving, for example, that a contributor is on a leave of absence.

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.

8.5.48 `@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.

8.5.49 `@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.

8.5.50 `@format` Format

Name of the image format for the bitmap that is provided with a `<glyph-data>` element. This 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.

8.5.51 `@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 XHMTL `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.

Value	Meaning
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).

8.5.52 `@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.

8.5.53 `@headers` Headers (NISO JATS table model)

List of `@id`s for table data and header cells. (This attribute is based on and intended to be converted easily to the XHMTL `headers` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to (contains) a list of one or more `ID`s of rows and columns that supply header information.

8.5.54 `@height` Height (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	The height of the mathematical object. Use MathML documentation.

8.5.55 `@id` Identifier

Unique identifier of an element; allows element to be cross-referenced. 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>, <abstract>, <ack>, <address>, <aff>, <aff-alternatives>, <alt-text>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <author-notes>, <award-group>, <award-id>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <col>, <colgroup>, <collab>, <compound-kwd>, <compound-subject>, <contrib>, <contrib-group>, <corresp>, <custom-meta>, <def>, <def-item>, <def-list>, <disp-formula>, <disp-formula-group>, <disp-quote>, <element-citation>, <ext-link>, <fig>, <fig-group>, <fn>, <fn-group>, <funding-source>, <funding-statement>, <glossary>, <glyph-data>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <kwd>, <kwd-group>, <list>, <list-item>, <long-desc>, <media>, <milestone-end>, <milestone-start>, <mixed-citation>, <mml:math>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <p>, <person-group>, <preformat>, <product>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <sec>, <sig>, <sig-block>, <source>, <speech>, <statement>, <std-organization>, <sub-article>, <subject>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <term>, <tex-math>, <tfoot>, <th>, <thead>, <title>, <tr>, <trans-abstract>, <trans-source>, <trans-title>, <trans-title-group>, <unstructured-kwd-group>, <verse-group>, and <xref>, 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.

8.5.56 @initials Initials for Personal Names

Initial(s) for the surname or the given names of a person.

Initials are recorded for purposes of searching or ease of conversion to applications that require initials rather than full names.

This attribute is optional and need not be used by organizations that do not ordinarily record contributor's initials. The intent is to provide a place to preserve the initials for publishers who do determine the person's initials editorially and then record that in their data, so this intellectual effort will not be lost.

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 given names.

8.5.57 @issue Issue Number of a Related Article

Issue number of a journal which contains the related article.

The @issue attribute can be used, along with the @vol, @journal-id, and @page attributes, to provide the metadata for 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".

8.5.58 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date ("YYYY-MM-DDThh:mm:ss") value for a date that may be specified as text, as a partial date, or as any other date format that cannot be guaranteed to be machine-processable.

In elements <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 for the date given in the element: "YYYY-MM-DDThh:mm:ss".

8.5.59 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

The @journal-id attribute can be used, along with the @vol, @issue, and @page attributes, to provide the metadata for 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.

8.5.60 @journal-id-type Type of Journal Identifier

Type of journal identifier or the authority that created a particular journal 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 identifies the organization or service who assigned the identifier (for example, "index" to indicate an abstracting or indexing service) or names the type of identifier (for example, "doi").

8.5.61 @kwd-group-type Keyword Authority

This attribute is used with two different definitions.

- The most common is the name of the thesaurus, ontology, or organization that established a particular group of keywords, for example, "MESH", "ISO-463", "IEEE", "author-generated", "ICD9-codes", etc.
- The second usage describes the type of keyword for some of the more unusual keyword groups (for example, "hierarchical" for keywords that are grouped into a hierarchy, "abbreviations" for keywords that contain an abbreviation and its expansion, or "code" for keywords that contain a code and its text but where the source of the codes is unknown).

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	The source of keywords. This may be an organization (such as "IEEE") or the name of a thesaurus, subject index, or ontology (such as "MESH").

8.5.62 @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.

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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.

8.5.63 `@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.

8.5.64 `@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.

8.5.65 `@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 ("`lower-alpha`" 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).

8.5.66 `@macros` Macros (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.67 `@mime-subtype` Mime Subtype

Mime subtype for a graphic, multimedia object, or piece of supplementary material.

In elements <graphic>, <inline-graphic>, <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).

8.5.68 @mimetype Mime Type

Mime type for a graphic, multimedia object, or piece of supplementary material.

In elements <graphic>, <inline-graphic>, <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.

8.5.69 @mode Mode (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.70 @name Name

This attribute can be used in several contexts:

- for use with the mathematics element (<mml:math>), see the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- for use with <private-char>, it contains the unique name for the private character being defined.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with <mml:math>, use MathML documentation.

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").

8.5.71 @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.

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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.

8.5.72 `@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.

8.5.73 `@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`".

8.5.74 `@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 graphical object for a `<related-object>` element.

8.5.75 `@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`.

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8.5.76 @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".

8.5.77 @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>, <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.

8.5.78 @other Other (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.79 @overflow Overflow (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute will be assigned the value scroll by default.

Value	Meaning
elide	Use MathML documentation.
scale	Use MathML documentation.
scroll	Use MathML documentation.
truncate	Use MathML documentation.

8.5.80 @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.

The @page attribute can be used with the @vol, @issue, and @journal-id attributes to identify the related article <related-article>.

In element <related-article>, this attribute *may* be used if the element is used.

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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 "35-583", or a letter/number combination, such as "46a" or "iii".

8.5.81 @person-group-type Type of People in the Person Group

Role of the persons being named in <person-group> element (for example, authors, editors, members of the G&S chorus).

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, "editors".

8.5.82 @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, 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>, <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.

8.5.83 @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.

8.5.84 @preformat-type Type of Preformatted Text

Type of content contained in the <preformat> element (for example, computer code, poetry, pseudocode, ASCII art, XML tagging).

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, "code" for sample computer code or "xml" for an XML-tagged data sample.

8.5.85 @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".

8.5.86 @pub-id-type Type of Publication Identifier

Type of publication identifier or the organization or system that defined the identifier.

This attribute is used in several contexts:

- as part of the article metadata (for example, on the <article-id> element, which holds an identifier for the entire article, or the <product> element);
- inside a bibliographic citation (for example, on the <pub-id> element, which identifies a publication cited in a bibliographic reference list);
- on an object identifier (for example, on the <object-id> element, which can act as an identifier for any number of different elements);
- on a related article or other related object (for example, on the <related-object> element); and
- on an issue or volume identifier (for example, on the <issue-id> element, which identifies an issue).

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 "doi" or name or type of organization that created the identifier, such as "aggregator".

8.5.87 @pub-type Type of Publication

A combination 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 print publication.

The combination of format and medium in one attribute is a holdover from previous versions of this Tag Set. In *this* version of this Tag Set, there are two attributes that can be used to describe the history dates and publication dates of articles. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media to which the event happened, such as "print". In previous versions of this Tag Set, the two types of information were combined, so an attribute could say that an article was "ecorrected", meaning that the article was in electronic form and that it was corrected. In this Tag Set, the attribute @date-type would take the value "corrected" and the @publication-format attribute would take the value "electronic" to convey the same information.

In elements <issn> and <pub-date>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	The type of print or electronic publication, for example, “epub” for electronic publication.

8.5.88 @publication-format Format of Publication

Format or medium of the document (for example, “print”). This element is used in two senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

For use in Dates: In this version of this Tag Set, there are two attributes that can be used to describe history dates and publication dates. The @date-type attribute records the type of event in the lifecycle, such as “accepted”, “published”, or “revised” dates. In addition, the @publication-format attribute records the type of format or media, for example, “print” or “electronic”, to which the event happened.

In elements <date>, <element-citation>, <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”.

8.5.89 @publication-type Type of Referenced Publication

Category of publication being cited (for example, “book”, “letter”, “review”, “journal”, “patent”, “report”, “standard”, “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” or “patent”.

8.5.90 @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”.

8.5.91 @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.

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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.

8.5.92 @ref-type Type of Cross-Reference

Type of element that is the target of the cross-reference (for example, "figure", "author-note", "bibliographic-reference"). The values may be used 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 element to which the reference points, for example, "fig" to indicate that the reference points to a figure (<fig>).

8.5.93 @related-article-type Type of Related Article

Type of article being described by the element (for example, "companion-article", "corrected-article", "retracted-article").

The <related-article> element describes (and may point to) another article that bears some relationship to the original article. This attribute describes (names the type of) the article being pointed to.

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".

8.5.94 @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.

8.5.95 @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".

8.5.96 @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.

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In elements <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>, <sig>, <sig-block>, <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.

8.5.97 @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 XHMTL 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".

8.5.98 @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 XHMTL 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.

8.5.99 @scope Scope (NISO JATS table model)

Specifies the cells for which the <td> element provides header information. This provides an alternative to using explicitly named header elements (<th>) if the arrangement of header cells is not complex. (This attribute is based on and intended to be converted easily to the XHMTL scope attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
col	Provides header information for the rest of a column.
colgroup	Provides header information for the rest of a column group (i.e., the remaining cells within the <colgroup> element).
row	Provides header information for the rest of a row.
rowgroup	Provides header information for the rest of a row group (i.e., the remaining cells of the current <thead>, <tfoot>, or <tbody>).

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8.5.100 @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 “conclusion”. This attribute is most useful when a list of values is maintained and articles are tagged accordingly.

8.5.101 @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.

For journals (such as continuous-makeup journals) where more than one article can start on a single page, this attribute can record a sequence number or letter to differentiate one article from the other articles on the same page. For example, the first article to start on page 62 might be given a sequence of “62a”; the sequence letter would be “a”, with a sequence letter “b” for a second article, etc.

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.

8.5.102 @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 <related-object> .

8.5.103 @source-id-type Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, PII, 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	The type of identifier that names the source of the related object, for example, a DOI.

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8.5.104 @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>)
- 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".

8.5.105 @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 XHMTL 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".

8.5.106 @specific-use Specific Use

Specifies distinctions in the applicability of a particular element.

This Tag Set does not limit the uses of the @specific-use attribute. For example, @specific-use could be used to mark content (such as a paragraph, note, or section) that:

- only appears in one format ("web-only", "print-only", "voice-only", "electronic-only");
- is intended for a particular audience (the set "for-teachers" versus the set for "for-students" or the sets "for-doctors", "for-nurses", or "for-the-patient");
- is organization-sensitive material ("company-only" or "limited-distribution") and thus not shown to all audiences;
- has a specific use that cannot be determined from the content of the material, for example, is part of continuing medical or legal education ("CME"); or
- contains an accessibility alternative that screen readers could "read" but that visual display devices would ignore. (See also the @alt attribute.)

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <app>, <app-group>, <array>, <article>, <article-id>, <attrib>, <author-comment>, <author-notes>, <award-group>, <award-id>, <bio>, <body>, <bold>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-

id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <custom-meta>, <date>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <etal>, <ext-link>, <fax>, <fig>, <fig-group>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <isbn>, <issn-l>, <issn>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <overline>, <overline-end>, <overline-start>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <phone>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-id>, <publisher-loc>, <publisher-name>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <roman>, <sans-serif>, <sc>, <season>, <sec>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <statement>, <std>, <strike>, <string-conf>, <string-date>, <string-name>, <styled-content>, <std-organization>, <sub>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <table-wrap>, <table-wrap-group>, <target>, <term>, <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>, <volume>, <volume-id>, <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".

8.5.107 @style Style (NISO JATS table model; MathML 2.0 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>), records XHTML classes or similar styling information;
- with many of the elements within a NISO JATS table(<table>), records the name of the style to be applied to the element; or
- with <mml:math>, use as defined in the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set (http://www.w3.org/TR/MathML2 [http://www.w3.org/TR/MathML2/]).

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 element <mml:math>, this attribute *may* be used if the element is used.

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Value	Meaning
Text, numbers, or special characters	As described in the MathML documentation.

In element `<styled-content>`, 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.

8.5.108 `@style-type` Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In element `<styled-content>`, 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`".

8.5.109 `@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.

8.5.110 `@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 XHMTL `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.

8.5.111 `@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 or reason for the supplement, for example, "`conference`" or "`issue`".

8.5.112 `@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 element `<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 "†".

8.5.113 `@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-references 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.

8.5.114 `@type` Type (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

8.5.115 `@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.

8.5.116 `@units` Units

The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value might 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`".

8.5.117 `@valign` Vertical 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 XHMTL `valign` 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
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.

8.5.118 `@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.

8.5.119 `@vol` Volume of Related Article

Volume of the journal in which a related journal article exists.

The `@vol` attribute can be used, along with the `@journal-id`, `@issue`, and `@page` attributes, to provide the metadata for a related journal article.

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.

8.5.120 `@width` Width (NISO JATS table model; MathML 2.0 Tag Set)

This attribute can be used in several contexts:

- within the mathematics element (`<mml:math>`). Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) this attribute should be used 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.

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Integer number pixels or a percentage of the display area	For use with `<mml:math>`, use MathML documentation.

8.5.121 `@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>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

8.5.122 `@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>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (which may be a URL) to a resource.

In elements <abbrev>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <mixed-citation>, <mml:math>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

8.5.123 `@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>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-

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citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

8.5.124 @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>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.
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.

8.5.125 @xlink:title Title of the Link

Describes the function of a link's remote resource in human-readable fashion.

In elements <abbrev>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

8.5.126 @xlink:type Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links (except the <mml:math> element), this attribute may be either omitted or set to the word "simple", which means that the link is a simple, one-ended link. For the <mml:math> element, the attribute may take any value that describes the link type, for example, a "simple" (one-ended) link, a "locator" link, a "title" link, an "extended" (multi-way) link, etc.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive name for the type of link present, for example, "simple" for an XML simple (one-ended) link, "extended" for a multi-way link, etc.

In elements <abbrev>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

8.5.127 @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 2.0 Tag Set.

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 2.0 Tag Set.

8.5.128 @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>, <award-group>, <award-id>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <funding-statement>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-

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citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

8.5.129 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but a namespace pseudo-attribute. The value provides a prefix to use for the MathML @xsi:schemaLocation attribute. 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.

8.5.130 @xml:lang Language

The language of the intellectual content of the element for which this is an attribute.

Typical values are described by the IETF RFC 5646, two-letter, lower-case language codes such as "fr" (French), "en" (English), "de" (German), and "zh" (Chinese). These values are **NOT** case sensitive, but current best practice uses all lower case. Values can be obtained from the IANA Language Subtag Registry: http://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>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <award-group>, <award-id>, <bio>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <copyright-holder>, <copyright-statement>, <corresp>, <country>, <custom-meta>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <etal>, <ext-link>, <fig>, <fig-group>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <pub-date>, <publisher-loc>, <publisher-

name>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <season>, <sec>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <size>, <source>, <speaker>, <speech>, <statement>, <std>, <string-conf>, <string-date>, <string-name>, <styled-content>, <std-organization>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <supplement>, <supplementary-material>, <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>, <volume>, <volume-id>, <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").

8.5.131 @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 <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.).

8.5.132 @xref Cross-Reference (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to another MathML element. Use MathML documentation.

8.5.133 @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.

8.5.134 @xsi:schemaLocation Schema Location (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

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8.5.135 `@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

9.1 Rationale

The Journal Publishing Tag ("Publishing") Set defines elements and attributes that describe the content and metadata of journal articles, including research and non-research articles, letters, editorials, and book and product reviews. The Tag Set allows for descriptions of the full article content or just the article header metadata.

Publishing is a moderately prescriptive tag set, optimized for archives that wish to regularize and control their content, not to accept the sequence and arrangement presented to them by any particular publisher. The Tag Set is also intended for use by publishers for the initial XML tagging of journal material, usually as converted from an authoring form like Microsoft Word.

Because Publishing is optimized for regularizing an archive or establishing a sequence of elements to aid print and web production, the Tag Set is smaller than the Archiving and Interchange Tag Set. There are fewer elements, fewer choices in many contexts, and a particular element sequence is imposed more often.

The philosophy of this Publishing Tag Set is to prefer a single structural form whenever possible. The Publishing Tag Set is optimized for regularizing an archive or establishing a sequence of elements to aid print and web production. Elements and tagging choices are limited to produce consistent data structures to enable output products and to provide a single location of information for searching.

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 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:

- 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 and its back matter (such as tables, figures, boxed text sidebars, etc.) into a separate container element outside the narrative flow for convenience of processing.
- 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 http://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**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

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**
`@specific-use` **Specific Use**
`@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` **Identifier**
`@specific-use` **Specific Use**
`@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
- `<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:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**

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, 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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

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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 one
- <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <country> **Country: in an Address**
- <fax> **Fax Number: in an Address**
- <institution> **Institution Name: in an Address**
- <phone> **Phone Number: in an Address**

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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Address Elements

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    - <addr-line> **Address Line**
    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <phone> **Phone Number: in an Address**
  - 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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Address Elements
  - <addr-line> **Address Line**
  - <country> **Country: in an Address**
  - <fax> **Fax Number: in an Address**
  - <institution> **Institution Name: in an Address**
  - <phone> **Phone Number: in an Address**
- Linking Elements
  - <email> **Email Address**
  - <ext-link> **External Link**
  - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <break> **Line Break**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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 **Identifier**

Content model:

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

9.4.10 <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 graphic or figure.

Attributes:

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

Content model:

Text, numbers, or special characters

9.4.11 <alt-title> Alternate Title

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

Attributes:

@alt-title-type **Type of Alternate Title**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**

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- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

9.4.12 <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.

Content model:

One or more of any of:

- <array> **Array (Simple Tabulation)**
- <chem-struct> **Chemical Structure (Display)**
- <graphic> **Graphic**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material**
- <table> **Table (NISO JATS table model)**
- <textual-form> **Textual Form**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**

9.4.13 <annotation> Annotation in a Citation

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

9.4.14 <anonymous> Anonymous

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

This is an EMPTY element

9.4.15 <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 **Identifier**

@specific-use **Specific Use**
@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**
      - <array> **Array (Simple Tabulation)**
      - <boxed-text> **Boxed Text**
      - <chem-struct-wrap> **Chemical Structure Wrapper**
      - <fig> **Figure**
      - <fig-group> **Figure Group**
      - <graphic> **Graphic**
      - <media> **Media Object**
      - <preformat> **Preformatted Text**
      - <supplementary-material> **Supplementary Material**
      - <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 2.0 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

9.4.16 <app-group> Appendix Group

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

Attributes:

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

Content model:

The following, in order:
- <label> **Label (of an Equation, Figure, Reference, etc.)**, zero or one

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- <title> **Title**, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> **Address/Contact Information**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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)**

9.4.17 <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 **Identifier**
@orientation **Orientation**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:
- Any combination of:
  - <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:
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.18 <article> Article

A journal article.

Attributes:

@article-type **Type of Article**
@dtd-version **Version of the Tag Set (DTD)**
@specific-use **Specific Use**
@xmlns:mml **MathML Namespace Declaration**
@xmlns:xlink **XLink Namespace Declaration**
@xmlns:xsi **XML Schema Namespace Declaration**
@xml:lang **Language**

Content model:

The following, in order:
- <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

9.4.19 <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.

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

9.4.20 <article-id> Article Identifier

Unique identifier assigned to an article.

Attributes:

@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.21 <article-meta> Article Metadata

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

Content model:

The following, in order:
- <article-id> **Article Identifier**, zero or more
- <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

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- <pub-date> **Publication Date**, one or more
- <volume> **Volume Number**, zero or one
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or one
- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one
- <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**
- <history> **History: Document 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
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

9.4.22 <article-title> Article Title

Full title of an article.

Attributes:

@id **Identifier**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**

    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

9.4.23 <attrib> Attribution

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements

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    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
  - Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.24 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

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

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, one or more

9.4.25 <author-notes> Author Note Group

Container element for notes about the article's contributors.

Attributes:

@id **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**

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**

9.4.26 <award-group> Award Group

Container element for information concerning one award under which the work (or the research on which the work was based) was supported.

Attributes:

@award-type **Type of Award**
@id **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**

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

Content model:

The following, in order:

- `<funding-source>` **Funding Source**, zero or more
- `<award-id>` **Award Identifier**, zero or more
- `<principal-award-recipient>` **Principal Award Recipient**, zero or more
- `<principal-investigator>` **Principal Investigator**, zero or more

9.4.27 `<award-id>` Award Identifier

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

Attributes:

`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.28 `<back>` Back Matter

Material published with an article but following the narrative flow.

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)**

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- <notes> **Notes**
- <sec> **Section**

9.4.29 <bio> Biography

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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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9.4.30 <body> Body of the Document

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

Attributes:

`@specific-use` **Specific Use**

Content model:

The following, in order:

- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<array>` **Array (Simple Tabulation)**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<supplementary-material>` **Supplementary Material**
    - `<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 2.0 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

9.4.31 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

`@specific-use` **Specific Use**

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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.32 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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**
        - <array> **Array (Simple Tabulation)**
        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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:
    - <attrib> **Attribution**
    - <permissions> **Permissions**

9.4.33 <break> Line Break

An explicit line break in the text.

Content model:

This is an EMPTY element

9.4.34 <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>).

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@xml:lang **Language**

Content model:

The following, in order:
- <title> **Title**, zero or one
- <p> **Paragraph**, zero or more

9.4.35 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter.

Attributes:

@specific-use **Specific Use**
@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

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    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.36 <chem-struct> Chemical Structure (Display)

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <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 2.0 Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <alternatives> **Alternatives For Processing**

- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.37 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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
- Any combination of:
  - <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)**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <textual-form> **Textual Form**
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

9.4.38 <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.

Content model:

One or more of any of:

- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**

9.4.39 <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> these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHMTL col element.)

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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 **Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

This is an EMPTY element

9.4.40 <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 XHMTL 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 **Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

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

9.4.41 <collab> Collaborative (Group) Author

Group of contributors credited under a single name; includes an organization credited as a contributor.

Attributes:

@collab-type **Type of Collaboration**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**

    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- Address Elements
    - <addr-line> **Address Line**
    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <phone> **Phone Number: in an Address**
- <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**
- <fn> **Footnote**

9.4.42 <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.

Content model:

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

9.4.43 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**

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    - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.44 <compound-kwd> Compound Keyword

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

Attributes:

@content-type **Type of Content**
@id **Identifier**

Content model:

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

9.4.45 <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**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**

    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.46 <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:

@content-type **Type of Content**
@id **Identifier**

Content model:

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

9.4.47 <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**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

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9.4.48 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.49 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

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

Content model:

Text, numbers, or special characters, zero or more

9.4.50 <conf-loc> Conference Location

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.51 <conf-name> Conference Name

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.52 <conf-num> Conference Number

Sequential number of a conference.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.53 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.54 <conf-theme> Conference Theme

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.55 <conference> Conference Information

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

Attributes:

`@content-type` **Type of Content**
`@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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

The following, in order:

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- <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

9.4.56 <contrib> Contributor

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

Attributes:

@contrib-type **Type of Contribution**
@corresp **Corresponding Author**
@deceased **Deceased**
@equal-contrib **Equal Contribution**
@id **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**
@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**
- <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**

9.4.57 <contrib-group> Contributor Group

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

Attributes:

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

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)**
  - <on-behalf-of> **On Behalf of**
  - <role> **Role or Function Title of Contributor**
  - <xref> **X (cross) Reference**

9.4.58 <contrib-id> Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element will hold an ORCID, a trusted publisher's identifier, a JST (Japanese Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:

@content-type **Type of Content**
@contrib-id-type **Contributor Identifier Type**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.59 <copyright-holder> Copyright Holder

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**

9.4.60 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@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

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    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.61 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.62 <corresp> Correspondence Information

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

Attributes:

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

Content model:

Any combination of:

  - Text, numbers, or special characters
  - Address Elements
    - <addr-line> **Address Line**
    - <country> **Country: in an Address**
    - <fax> **Fax Number: in an Address**
    - <institution> **Institution Name: in an Address**
    - <phone> **Phone Number: in an Address**
  - Linking Elements
    - <email> **Email Address**
    - <ext-link> **External Link**
    - <uri> **Uniform Resource Identifier (URI)**
  - Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
  - <label> **Label (of an Equation, Figure, Reference, etc.)**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
  - <sub> **Subscript**

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- <sup> **Superscript**

9.4.63 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.64 <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**

Content model:

This is an EMPTY element

9.4.65 <counts> Counts

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

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

9.4.66 <custom-meta> Custom Metadata

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

Attributes:

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

Content model:

The following, in order:

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

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9.4.67 <custom-meta-group> Custom Metadata Group

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

Content model:

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

9.4.68 <date> Date

Container element for the parts of a single calendar date.

Attributes:

@calendar **Calendar**
@date-type **Type of Date**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@specific-use **Specific Use**

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**

9.4.69 <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**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <month> **Month**
- <season> **Season**
- <year> **Year**

9.4.70 <day> Day

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.71 <def> Definition List: Definition

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

Attributes:

@id **Identifier**

@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

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

9.4.72 <def-head> Definition List: Definition Head

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.73 <def-item> Definition List: Definition Item

Container element for one term/definition pair in a definition list.

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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Content model:

The following, in order:

- <term> **Definition List: Term**
- <def> **Definition List: Definition**, zero or more

9.4.74 <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 **Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@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

9.4.75 <degrees> Degree(s)

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.76 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <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**
  - <italic> **Italic**

    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
  - Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
  - <chem-struct> **Chemical Structure (Display)**
  - <inline-formula> **Formula, Inline**
  - <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 2.0 Tag Set)**
  - <alternatives> **Alternatives For Processing**
  - <array> **Array (Simple Tabulation)**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <sub> **Subscript**
  - <sup> **Superscript**

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

Container element for equations or other mathematical expressions.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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:
  - <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**

9.4.78 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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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 one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` **Address/Contact Information**
    - `<array>` **Array (Simple Tabulation)**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<supplementary-material>` **Supplementary Material**
    - `<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 2.0 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:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

9.4.79 `<edition>` Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

`@content-type` **Type of Content**
`@designator` **Designator of the Edition**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.80 `<element-citation>` Element Citation

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

Attributes:

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

Content model:

One or more of any of:

- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.81 <location-id> Electronic Location Identifier

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

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.82 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.83 <equation-count> Equation Count

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

Attributes:

@count **Count**

Content model:

This is an EMPTY element

9.4.84 <etal> Et Al.

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.85 <ext-link> External Link

Link to an external file or resource.

Attributes:

@ext-link-type **Type of External Link**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.86 <fax> Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

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Content model:

Text, numbers, or special characters, zero or more

9.4.87 <fig> Figure

Block of graphic 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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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
- Any combination of:
  - <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)**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

9.4.88 <fig-count> Figure Count

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

Attributes:

@count **Count**

Content model:

This is an EMPTY element

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9.4.89 <fig-group> Figure Group

Container element for figures that are to be displayed together.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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:
  - <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**
  - <alternatives> **Alternatives For Processing**
  - <graphic> **Graphic**
  - <media> **Media Object**

9.4.90 <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.

Content model:

Any combination of:

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

9.4.91 <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:

@fn-type **Type of Footnote**
@id **Identifier**
@specific-use **Specific Use**
@symbol **Symbol**
@xml:lang **Language**

Content model:

The following, in order:

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

9.4.92 <fn-group> Footnote Group

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

Attributes:

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

9.4.93 <fpage> First Page

Page number on which a document starts.

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.94 <front> Front Matter

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

Content model:

The following, in order:

- <journal-meta> **Journal Metadata**
- <article-meta> **Article Metadata**
- <notes> **Notes**, zero or one

9.4.95 <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.

Content model:

The following, in order:

- <article-id> **Article Identifier**, zero or more
- <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
- <pub-date> **Publication Date**, zero or more
- <volume> **Volume Number**, zero or one
- <volume-id> **Volume Identifier**, zero or more
- <volume-series> **Volume Series**, zero or one
- <issue> **Issue Number**, zero or one

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- <issue-id> **Issue Identifier**, zero or more
- <issue-title> **Issue Title**, zero or more
- <issue-sponsor> **Issue Sponsor**, zero or more
- <issue-part> **Issue Part**, zero or one
- <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**
- <history> **History: Document 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
- <conference> **Conference Information**, zero or more
- <counts> **Counts**, zero or one
- <custom-meta-group> **Custom Metadata Group**, zero or one

9.4.96 <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:

@specific-use **Specific Use**
@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

9.4.97 <funding-source> Funding Source

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

Attributes:

@country **Country**
@id **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**

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.98 `<funding-statement>` Funding Statement

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

Attributes:

`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@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**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**

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- <sup> **Superscript**

9.4.99 <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:

@initials **Initials for Personal Names**

Content model:

Text, numbers, or special characters, zero or more

9.4.100 <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 **Identifier**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <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 2.0 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

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9.4.101 <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 **Identifier**
@resolution **Resolution of the Glyph Bitmap**
@xml:space **Space**
@x-size **X Size of the Glyph**
@y-size **Y Size of the Glyph**

Content model:

Text, numbers, or special characters

9.4.102 <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**

Content model:

This is an EMPTY element

9.4.103 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**

- <styled-content> **Styled Special (Subject) Content**

9.4.104 <graphic> Graphic

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- <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)**
- <object-id> **Object Identifier**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <caption> **Caption of a Figure, Table, etc.**
- <attrib> **Attribution**
- <permissions> **Permissions**

9.4.105 <history> History: Document History

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

Content model:

<date> **Date**, one or more

9.4.106 <hr> Horizontal Rule

An explicit horizontal rule.

Content model:

This is an EMPTY element

9.4.107 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.108 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any one of:

- <alt-text> **Alternate Text Name (for a figure, etc.)**, zero or one

9.4.109 <inline-supplementary-material> Inline Supplementary Material

Description of and inline pointer to an external file that provides supplementary information for the document.

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.110 <institution> Institution Name: in an Address

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**

9.4.111 <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:

@content-type **Type of Content**

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`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

9.4.112 <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:

`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

9.4.113 <issn> ISSN

International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:

`@pub-type` **Type of Publication**
`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

9.4.114 <issue> Issue Number

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

Attributes:

`@content-type` **Type of Content**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.115 <issue-id> Issue Identifier

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

Attributes:

`@content-type` **Type of Content**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.116 <issue-part> Issue Part

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.117 <issue-sponsor> Issue Sponsor

Sponsor for an issue of the journal.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.118 <issue-title> Issue Title

Theme or special title for a journal issue.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.119 <italic> Italic

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

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**

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- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.120 <journal-id> Journal Identifier

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

Attributes:

@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.121 <journal-meta> Journal Metadata

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

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**, 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

9.4.122 <journal-subtitle> Journal Subtitle (Full)

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.123 <journal-title> Journal Title (Full)

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.124 <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**

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

9.4.125 <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 the 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:

@content-type **Type of Content**
@id **Identifier**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.126 <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:

@id **Identifier**
@kwd-group-type **Keyword Authority**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

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

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- <title> **Title**, zero or one
- One or more of any of:
  - <kwd> **Keyword**
  - <compound-kwd> **Compound Keyword**
  - <nested-kwd> **Nested Keyword**

9.4.127 <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**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.128 <license> License Information

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

Attributes:

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

Content model:

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

9.4.129 <license-p> License Paragraph

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <array> **Array (Simple Tabulation)**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**

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    - <styled-content> **Styled Special (Subject) Content**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <price> **Price**

9.4.130 <list> List

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

Attributes:

@continued-from **Continued From**
@id **Identifier**
@list-content **List Content**
@list-type **Type of List**
@prefix-word **Prefix Word (For a List Item)**
@specific-use **Specific Use**
@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
- <list-item> **List Item**, one or more

9.4.131 <list-item> List Item

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@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**
    - Lists
        - <def-list> **Definition List**
        - <list> **List**

9.4.132 <long-desc> Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box.

Attributes:

@content-type **Type of Content**
@id **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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`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.133 <lpage> Last Page

Page number on which a document ends.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.134 <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**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- `<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)**
- `<object-id>` **Object Identifier**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- `<caption>` **Caption of a Figure, Table, etc.**
- `<attrib>` **Attribution**
- `<permissions>` **Permissions**

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

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

Content model:

Text, numbers, or special characters, zero or more

9.4.136 <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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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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.137 <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 **Identifier**
@rationale **Rationale**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

This is an EMPTY element

9.4.138 <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` **Identifier**
`@rationale` **Rationale**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

This is an EMPTY element

9.4.139 `<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:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<label>` **Label (of an Equation, Figure, Reference, etc.)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<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**

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- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.140 <mml:math> Math (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

Attributes:

@altimg **Alternate Image (MathML 2.0 Tag Set)**
@alttext **Alternate Text (MathML 2.0 Tag Set)**
@baseline **Baseline (MathML 2.0 Tag Set)**
@class **Class (MathML 2.0 Tag Set)**
@display **Display (MathML 2.0 Tag Set)**
@height **Height (MathML 2.0 Tag Set)**
@id **Identifier**
@macros **Macros (MathML 2.0 Tag Set)**
@mode **Mode (MathML 2.0 Tag Set)**
@name **Name**
@other **Other (MathML 2.0 Tag Set)**
@overflow **Overflow (MathML 2.0 Tag Set)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@type **Type (MathML 2.0 Tag Set)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**
@xlink:href **Href (Linking Mechanism)**
@xlink:type **Type of Link**
@xmlns:mml **MathML Namespace Declaration**
@xref **Cross-Reference (MathML 2.0 Tag Set)**
@xsi:schemaLocation **Schema Location (MathML 2.0 Tag Set)**

9.4.141 <monospace> Monospace Text (Typewriter Text)

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

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**

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    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.142 <month> Month

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.143 <name> Name of Person

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

Attributes:

@content-type **Type of Content**
@name-style **Name Style**
@specific-use **Specific Use**
@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

9.4.144 <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).

Content model:

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

9.4.145 <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**
@id **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- Paragraph-level Display Elements
  - `<address>` **Address/Contact Information**
  - `<array>` **Array (Simple Tabulation)**
  - `<boxed-text>` **Boxed Text**
  - `<chem-struct-wrap>` **Chemical Structure Wrapper**
  - `<fig>` **Figure**
  - `<fig-group>` **Figure Group**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<supplementary-material>` **Supplementary Material**
  - `<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**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<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 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**

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- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

9.4.146 <nested-kwd> Nested Keyword

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

Attributes:

@content-type **Type of Content**
@id **Identifier**

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

9.4.147 <nlm-citation> NLM Citation

This element is deprecated; avoid using it. Use <element-citation>.

Attributes:

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

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

9.4.148 <note> Note in a Reference List

Non-citation content inside a bibliographic reference list.

Attributes:

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

9.4.149 <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 **Identifier**
@notes-type **Type of Notes**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <fig-group> **Figure Group**
    - <graphic> **Graphic**

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        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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)**

9.4.150 <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:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.151 <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:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <sub> **Subscript**

- <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

9.4.152 <open-access> Open Access

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

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

9.4.153 <overline> Overline

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

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**

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- <sup> **Superscript**

9.4.154 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <array> **Array (Simple Tabulation)**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <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**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.155 <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**

Content model:

This is an EMPTY element

9.4.156 <page-range> Page Ranges

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

9.4.157 <part-title> Part Title in a Citation

Title of part of a book (for example, chapter, module) described in a bibliographic reference.

Attributes:

@specific-use **Specific Use**
@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**
  - <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**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.158 <patent> Patent Number, Cited

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

Attributes:

@content-type **Type of Content**
@country **Country**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.159 <permissions> Permissions

Container element for copyright and license information.

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
- <license> **License Information**, zero or more

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

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

Attributes:

@id **Identifier**
@person-group-type **Type of People in the Person Group**
@specific-use **Specific Use**
@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**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <etal> **Et Al.**
- <role> **Role or Function Title of Contributor**
- <string-name> **Name of Person (Unstructured)**

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9.4.161 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

9.4.162 <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**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.163 <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` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@preformat-type` **Type of Preformatted Text**
`@specific-use` **Specific Use**
`@xml:lang` **Language**
`@xml:space` **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<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)**
- `<attrib>` **Attribution**
- `<permissions>` **Permissions**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**

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    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.164 <price> Price

Sale price or licensing fees of a work.

Attributes:

@content-type **Type of Content**
@currency **Currency**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**

9.4.165 <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:

@specific-use **Specific Use**
@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**
- <string-name> **Name of Person (Unstructured)**

9.4.166 <principal-investigator> Principal Investigator

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

Attributes:

@specific-use **Specific Use**
@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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9.4.167 <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**
@name **Name**
@specific-use **Specific Use**

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

9.4.168 <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:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <break> **Line Break**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**

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    - <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**

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- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.169 <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:

@calendar **Calendar**
@date-type **Type of Date**
@iso-8601-date **ISO-8601 Formatted Date**
@pub-type **Type of Publication**
@publication-format **Format of Publication**
@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**

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

Identifier of a publication in a bibliographic reference or product.

Attributes:

@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

9.4.171 <publisher> Publisher

Container element for information about the person, company, or other entity that published a work.

Attributes:

@content-type **Type of Content**

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

9.4.172 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

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)**

9.4.173 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.174 <ref> Reference Item

One item in a bibliographic list.

Attributes:

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

9.4.175 <ref-count> Reference Count

Number of references or citations that appear in a bibliographic reference list.

Attributes:

@count **Count**

Content model:

This is an EMPTY element

9.4.176 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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**
    - <array> **Array (Simple Tabulation)**

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        - <boxed-text> **Boxed Text**
        - <chem-struct-wrap> **Chemical Structure Wrapper**
        - <fig> **Figure**
        - <fig-group> **Figure Group**
        - <graphic> **Graphic**
        - <media> **Media Object**
        - <preformat> **Preformatted Text**
        - <supplementary-material> **Supplementary Material**
        - <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 2.0 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

---

9.4.177 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
    - <bold> **Bold**
    - <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**
- <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**

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- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.178 <related-object> Related Object Information

Description of an object (for example, book chapter, figure, table) related to the content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**
@ext-link-type **Type of External Link**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**

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- <conf-sponsor> **Conference Sponsor**
- <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**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.179 <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 **Identifier**
@response-type **Type of Response**

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- 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

9.4.180 <role> Role or Function Title of Contributor

Title or role of a contributor to a work (for example, editor-in-chief, chief scientist, photographer, research associate).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

9.4.181 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.182 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements

    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
  - <fn> **Footnote**
  - <target> **Target of an Internal Link**
  - <xref> **X (cross) Reference**
  - <sub> **Subscript**
  - <sup> **Superscript**

9.4.183 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.184 <season> Season

Season of publication (for example, Spring, Third Quarter).

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Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters

9.4.185 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:

`@id` **Identifier**
`@sec-type` **Type of Section**
`@specific-use` **Specific Use**
`@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**
    - `<array>` **Array (Simple Tabulation)**
    - `<boxed-text>` **Boxed Text**
    - `<chem-struct-wrap>` **Chemical Structure Wrapper**
    - `<fig>` **Figure**
    - `<fig-group>` **Figure Group**
    - `<graphic>` **Graphic**
    - `<media>` **Media Object**
    - `<preformat>` **Preformatted Text**
    - `<supplementary-material>` **Supplementary Material**
    - `<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 2.0 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)**

9.4.186 <sec-meta> Section Metadata

Container element for section-level metadata that is different from the parent document.

Content model:

The following, in order:

- <contrib-group> **Contributor Group**, zero or more
- <kwd-group> **Keyword Group**, zero or more
- <permissions> **Permissions**, zero or one

9.4.187 <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, printed article and in its expanded version with additional graphics available online).

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.188 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**

9.4.189 <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**
@specific-use **Specific Use**

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`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**

9.4.190 `<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**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**

9.4.191 `<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` **Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements

    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <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**
    - <private-char> **Private Character (Custom or Unicode)**
- <graphic> **Graphic**
- <media> **Media Object**

9.4.192 <sig-block> Signature Block

Area of text and graphic 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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <break> **Line Break**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <graphic> **Graphic**
- <media> **Media Object**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sig> **Signature**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.193 <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).

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Attributes:

`@specific-use` **Specific Use**
`@units` **Units**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.194 <source> Source

Title of a document (for example, journal, book, conference proceedings) that contains (is the source of) the material being cited in a bibliographic reference or product.

Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@specific-use` **Specific Use**
`@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**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.195 <speaker> Speaker

One who utters one segment of a speech or dialog.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**

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9.4.196 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- <speaker> **Speaker**
- <p> **Paragraph**, one or more

9.4.197 <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 **Identifier**
@specific-use **Specific Use**
@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
- <p> **Paragraph**, one or more
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

9.4.198 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <day> **Day**
- <month> **Month**

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- <pub-id> **Publication Identifier for a Cited Publication**
- <source> **Source**
- <std-organization> **Standards Organization**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.199 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.200 <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**

@name-style **Name Style**
@specific-use **Specific Use**
@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**

9.4.201 <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**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@style-type **Style Type**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Paragraph-level Display Elements
  - <address> **Address/Contact Information**
  - <array> **Array (Simple Tabulation)**
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <fig-group> **Figure Group**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <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**
  - <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**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <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 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <disp-quote> **Quote, Displayed**
- <speech> **Speech**
- <statement> **Statement, Formal**
- <verse-group> **Verse Form for Poetry**

9.4.202 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**

9.4.203 <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**
@specific-use **Specific Use**

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-supplementary-material> **Inline Supplementary Material**

- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.204 <sub-article> Sub-article

An article that is completely contained inside another article.

Attributes:

@article-type **Type of Article**
@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- 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

9.4.205 <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.

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Attributes:

`@specific-use` **Specific Use**
`@subj-group-type` **Type of Subject Group**
`@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

9.4.206 `<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:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.207 `<subtitle>` Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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)**

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- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

9.4.208 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.209 <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**
@specific-use **Specific Use**

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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- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.210 <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:

@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**

- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <contrib-group> **Contributor Group**
- <title> **Title**

9.4.211 <supplementary-material> Supplementary Material

Container element for description of and pointer to additional data files that contain information directly supportive of the document (for example, audio clip, applet, raw research data).

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@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
- Any combination of:
  - <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**

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- ◦ <array> **Array (Simple Tabulation)**
- ◦ <graphic> **Graphic**
- ◦ <media> **Media Object**
- ◦ <preformat> **Preformatted Text**
- Any combination of:
  - ◦ <attrib> **Attribution**
  - ◦ <permissions> **Permissions**

9.4.212 <surname> Surname

Surname of a person.

Attributes:

@initials **Initials for Personal Names**

Content model:

Text, numbers, or special characters, zero or more

9.4.213 <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 XHMTL 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 **Identifier**
@rules **Rules (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@summary **Summary (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

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

9.4.214 <table-count> Table Count

Number of <table-wrap> elements that appear in the document.

Attributes:

@count **Count**

Content model:

This is an EMPTY element

9.4.215 <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` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@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
- Any combination of:
  - `<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**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<table>` **Table (NISO JATS table model)**
- Any combination of:
  - `<table-wrap-foot>` **Table Wrapper Footer**
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

9.4.216 `<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.

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**
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

9.4.217 `<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` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**

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`@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:
  - `<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)**
- `<table-wrap>` **Table Wrapper**, one or more

9.4.218 `<target>` Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

`@id` **Identifier**
`@specific-use` **Specific Use**
`@target-type` **Type of Target**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.219 `<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` **Identifier**
`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**

Content model:

`<tr>` **Table Row (NISO JATS table model)**, one or more

9.4.220 `<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 XHMTL `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 **Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

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**
- <inline-supplementary-material> **Inline Supplementary Material**
- <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <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)**
- <graphic> **Graphic**

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- <media> **Media Object**
- <preformat> **Preformatted Text**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.221 <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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**

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- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**

9.4.222 <term-head> Definition List: Term Head

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

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.223 <tex-math> TeX Math Equation

Used to hold encoded math, expressed in TeX or LaTeX.

Attributes:

@content-type **Type of Content**
@id **Identifier**

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`@notation` **Notation**
`@version` **Version of TeX or LaTeX**

Content model:

Text, numbers, or special characters

9.4.224 `<textual-form>` Textual Form

This element holds text (mixed content) in places where alternatives can be presented, providing a textual alternative. For example, inside the `<alternatives>` wrapper element, a `<textual-form>` can provide an alternative version of an equation, graphic, or table. This alternative textual version may be a direct textual representation of an object (such as a Unicode value for a special character or the full text of an equation in ASCII characters), or a simplified textual version of the object (for display by devices not able to cope with the object), or a text-dump of the contents of a binary object (for example, the full text-dump of the cells of a table to accompany a graphical version of the table).

Attributes:

`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.225 `<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 XHMTL `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` **Identifier**
`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@valign` **Vertical Alignment (NISO JATS table model)**

Content model:

`<tr>` **Table Row (NISO JATS table model)**, one or more

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9.4.226 <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 XHMTL 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 **Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

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**
- <inline-supplementary-material> **Inline Supplementary Material**
- <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**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <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 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**

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    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <alternatives> **Alternatives For Processing**
- <array> **Array (Simple Tabulation)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.227 <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 XHMTL 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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

9.4.228 <time-stamp> Time Stamp for Cited Work

This element is deprecated; avoid using it. Use <date-in-citation>.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

9.4.229 <title> Title

Heading or title for a structural element (for example, <sec>, <app>, <boxed-text>).

Attributes:

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

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

- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <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**

9.4.230 <title-group> Title Group

Container element to hold the various titles for a document or a document component.

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

9.4.231 <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 XHMTL `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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

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Content model:

One or more of any of:

- `<th>` **Table Header Cell (NISO JATS table model)**
- `<td>` **Table Data Cell (NISO JATS table model)**

9.4.232 `<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` **Identifier**
`@specific-use` **Specific Use**
`@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
- `<p>` **Paragraph**, zero or more
- `<sec>` **Section**, zero or more

9.4.233 `<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` **Identifier**
`@specific-use` **Specific Use**
`@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**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

9.4.234 `<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:

`@specific-use` **Specific Use**

`@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-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Math Elements
  - `<tex-math>` **TeX Math Equation**
  - `<mml:math>` **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<break>` **Line Break**

9.4.235 `<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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**

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    - <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
    - <bold> **Bold**
    - <italic> **Italic**
    - <monospace> **Monospace Text (Typewriter Text)**
    - <overline> **Overline**
    - <roman> **Roman**
    - <sans-serif> **Sans Serif**
    - <sc> **Small Caps**
    - <strike> **Strike Through**
    - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
    - <inline-graphic> **Graphic, Inline**
    - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
    - <tex-math> **TeX Math Equation**
    - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
    - <abbrev> **Abbreviation or Acronym**
    - <milestone-end> **Milestone End**
    - <milestone-start> **Milestone Start**
    - <named-content> **Named Special (Subject) Content**
    - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

9.4.236 <trans-title-group> Translated Title Group

Container element for translated and transliterated titles.

Attributes:

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

Content model:

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

9.4.237 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@specific-use **Specific Use**
@underline-style **Appearance of the Underline**

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-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- Emphasis Elements
  - <bold> **Bold**
  - <italic> **Italic**
  - <monospace> **Monospace Text (Typewriter Text)**
  - <overline> **Overline**
  - <roman> **Roman**
  - <sans-serif> **Sans Serif**
  - <sc> **Small Caps**
  - <strike> **Strike Through**
  - <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- Inline Display Elements
  - <inline-graphic> **Graphic, Inline**
  - <private-char> **Private Character (Custom or Unicode)**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- Math Elements
  - <tex-math> **TeX Math Equation**
  - <mml:math> **Math (MathML 2.0 Tag Set)**
- Other Inline Elements
  - <abbrev> **Abbreviation or Acronym**
  - <milestone-end> **Milestone End**
  - <milestone-start> **Milestone Start**
  - <named-content> **Named Special (Subject) Content**
  - <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.238 <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>http://www.mulberrytech.com</uri>).

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.239 <verse-group> Verse Form for Poetry

Song, poem, or verse.

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Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@specific-use` **Specific Use**
`@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:
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

9.4.240 `<verse-line>` Line of a Verse

One line of a poem or verse.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` **Bold**
  - `<italic>` **Italic**
  - `<monospace>` **Monospace Text (Typewriter Text)**
  - `<overline>` **Overline**
  - `<roman>` **Roman**
  - `<sans-serif>` **Sans Serif**
  - `<sc>` **Small Caps**
  - `<strike>` **Strike Through**
  - `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- Inline Display Elements
  - `<inline-graphic>` **Graphic, Inline**
  - `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- Other Inline Elements
  - `<abbrev>` **Abbreviation or Acronym**
  - `<milestone-end>` **Milestone End**
  - `<milestone-start>` **Milestone Start**
  - `<named-content>` **Named Special (Subject) Content**
  - `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**

9.4.241 `<volume>` Volume Number

Number of a journal (or other document) within a series.

Attributes:

`@content-type` **Type of Content**
`@seq` **Sequence**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.242 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

`@content-type` **Type of Content**
`@pub-id-type` **Type of Publication Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.243 <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**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

9.4.244 <word-count> Word Count

The approximate number of words that appear in a document or document component.

Attributes:

`@count` **Count**

Content model:

This is an EMPTY element

9.4.245 <xref> X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

`@alt` **Alternative Text**
`@id` **Identifier**
`@ref-type` **Type of Cross-Reference**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> **Bold**
  - <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**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

9.4.246 <year> Year

Numerical, 4-digit year.

Attributes:

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

Content model:

Text, numbers, or special characters

9.5 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:

- 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.

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 XHMTL 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").

The Tag Set does not prescribe values for this attribute, so any type of abstract that a publisher records can be preserved.

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 XHMTL 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 textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

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9.5.6 `@altimg` Alternate Image (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.7 `@alttext` Alternate Text (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.8 `@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`".

9.5.9 `@arrange` Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts or 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 or superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts or superscripts should be stretched out in a line.

9.5.10 `@article-type` Type of Article

Type or kind of article (for example, "`research`", "`commentary`", "`review`", "`case`", or "`calendar`").

This attribute can be used to attach information classes to articles for grouping or searching. An archive may use this, for example, to preserve the publisher's classification of an article.

Use for primary article — When the article is a commentary on another article (for example, a correction or addendum), this attribute contains metadata concerning the commentary itself; it does *not* define the kind of article that is being corrected or amended.

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`”.

9.5.11 `@award-type` Type of Award

Type or kind of award (for example, “`grant`” or “`contract`”).

In element `<award-group>`, 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`”.

9.5.12 `@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 XHMTL `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.

9.5.13 `@baseline` Baseline (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.14 `@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.

9.5.15 `@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 XHMTL `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.

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9.5.16 @calendar Calendar

Name of the calendar used in naming a date such as a publication date, for example, "Gregorian", "Japanese" (Emperor years), or "Islamic".

In elements <conf-date>, <date>, <date-in-citation>, <pub-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".

9.5.17 @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 XHMTL 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.

9.5.18 @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 XHMTL 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.

9.5.19 @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 XHMTL 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.

9.5.20 @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 XHMTL 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).

9.5.21 `@class` Class (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, number, or special characters	Use MathML documentation.

9.5.22 `@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`" .

9.5.23 `@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 XHMTL `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`".

9.5.24 `@content-type` Type of Content

Subject or type of content that makes this element semantically distinct.

In element `<named-content>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the distinct function for the `<named-content>` that cannot otherwise be described by the elements in this Suite. For example, a medical article might use the value "`body-system`" or "`gene`" while a management article might use the value "`product-name`" or "`stock-code`".

In elements `<abbrev>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<alt-text>`, `<annotation>`, `<app>`, `<app-group>`, `<array>`, `<author-comment>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chem-struct>`, `<chem-struct-wrap>`, `<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-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<corresp>`, `<country>`, `<date-in-citation>`, `<day>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<elocation-id>`, `<email>`, `<fax>`, `<fig-group>`, `<fn-group>`, `<fpage>`,

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<glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <isbn>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <p>, <page-range>, <patent>, <phone>, <prefix>, <price>, <publisher>, <ref>, <ref-list>, <related-object>, <role>, <season>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <statement>, <std>, <string-name>, <std-organization>, <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>, <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.

9.5.25 @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.

9.5.26 @contrib-id-type Contributor Identifier Type

Names the type of contributor identifier or the authority that is responsible for the creation of the contributor identifier.

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".

9.5.27 @contrib-type Type of Contribution

Type of contribution made by the individual (for example, "author", "editor", "illustrator", "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".

9.5.28 @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.

9.5.29 @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.

9.5.30 @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, "contributor" when counting the number of authors or "image" for the number of images.

9.5.31 @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>, and <patent>, 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.

9.5.32 @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.

9.5.33 @date-type Type of Date

Event in the lifecycle of an article that this date is marking (for example, the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In this version of this Tag Set, there are two attributes that can be used to describe history dates and publication dates of articles. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format

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or media, for example, “print”, to which the event happened. In previous versions of this Tag Set, the two types of information were combined, so an attribute could say that an article was “ecorrected”, meaning that the article was in electronic form and that it was corrected. In this Tag Set, the attribute @date-type would take the value “corrected” and the @publication-format attribute would take the value “electronic” to convey the same information.

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.

9.5.34 @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.

9.5.35 @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”.

9.5.36 @designator Designator of the Edition

The edition number as an unadorned numeric or alphabetic value.

In element <edition>, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character that indicates the edition number	The straight unadorned edition number, for machine processing. Typically this is a number such as “4” or an alphabetic character such as “A”.

9.5.37 @display Display (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.38 `@document-id` Document Identifier

Identifier of a document 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>`).

9.5.39 `@document-id-type` Document Identifier Type

Type of document identifier (for example, a DOI, PII, or a publisher's identifier).

In element `<related-object>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of document identifier involved for a related object (`<related-object>`).

9.5.40 `@document-type` Document Type

Type of document being described by 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 type of related object, for example, "`article`" for a journal article.

9.5.41 `@dtd-version` Version of the Tag Set (DTD)

Version of the Tag Set that should be used to validate this article.

In element `<article>`, this attribute *must* have the value `1.0` (as given below).

Value	Meaning
1.0	The NISO JATS 1.0 version of the Journal Publishing Tag Set is being used.

9.5.42 `@elocation-id` Elocation Identifier

Bibliographic identifier for a document 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.

9.5.43 `@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.

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9.5.44 `@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`"), 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, "`ftp`" or "`uri`".

9.5.45 `@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`".

9.5.46 `@fn-type` Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

There are many reasons why the text or metadata of an article might be footnoted. Where those reasons are known (for example, the reasons are listed in the suggested values list below), this attribute can preserve that information. This could be a means of preserving, for example, that a contributor is on a leave of absence.

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.
conflict	Conflict of interest statements.
corresp	Corresponding author information not identified separately, but merely footnoted.
current-aff	Contributor's current affiliation.
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.
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.

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Value	Meaning
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.

9.5.47 `@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.

9.5.48 `@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.

9.5.49 `@format` Format

Name of the image format for the bitmap that is provided with a `<glyph-data>` element. This 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.

9.5.50 `@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 XHMTL `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.

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Value	Meaning
void	No border (none).
vsides	Rules on vertical sides only (sides).

9.5.51 @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.

9.5.52 @headers Headers (NISO JATS table model)

List of @ids for table data and header cells. (This attribute is based on and intended to be converted easily to the XHMTL headers attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to (contains) a list of one or more IDs of rows and columns that supply header information.

9.5.53 @height Height (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Number	The height of the mathematical object. Use MathML documentation.

9.5.54 @id Identifier

Unique identifier of an element; allows element to be cross-referenced. 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>, <ack>, <address>, <aff>, <aff-alternatives>, <alt-text>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <author-notes>, <award-group>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <col>, <colgroup>, <collab>, <compound-kwd>, <compound-subject>, <contrib>, <contrib-group>, <corresp>, <custom-meta>, <def>, <def-item>, <def-list>, <disp-formula>, <disp-formula-group>, <disp-quote>, <element-citation>, <ext-link>, <fig>, <fig-group>, <fn>, <fn-group>, <funding-source>,

<glossary>, <glyph-data>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <kwd>, <kwd-group>, <list>, <list-item>, <long-desc>, <media>, <milestone-end>, <milestone-start>, <mixed-citation>, <mml:math>, <named-content>, <nested-kwd>, <nlm-citation>, <note>, <notes>, <p>, <person-group>, <preformat>, <product>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <sec>, <sig>, <sig-block>, <source>, <speech>, <statement>, <std-organization>, <sub-article>, <subject>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <term>, <tex-math>, <tfoot>, <th>, <thead>, <title>, <tr>, <trans-abstract>, <trans-source>, <trans-title>, <trans-title-group>, <verse-group>, and <xref>, 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.

9.5.55 @initials Initials for Personal Names

Initial(s) for the surname or the given names of a person.

Initials are recorded for purposes of searching or ease of conversion to applications that require initials rather than full names.

This attribute is optional and need not be used by organizations that do not ordinarily record contributor's initials. The intent is to provide a place to preserve the initials for publishers who do determine the person's initials editorially and then record that in their data, so this intellectual effort will not be lost.

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 given names.

9.5.56 @issue Issue Number of a Related Article

Issue number of a journal which contains the related article.

The @issue attribute can be used, along with the @vol, @journal-id, and @page attributes, to provide the metadata for 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".

9.5.57 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date ("YYYY-MM-DDThh:mm:ss") value for a date that may be specified as text, as a partial date, or as any other date format that cannot be guaranteed to be machine-processable.

In elements <conf-date>, <date>, <date-in-citation>, <pub-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 for the date given in the element: "YYYY-MM-DDThh:mm:ss".

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9.5.58 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

The @journal-id attribute can be used, along with the @vol, @issue, and @page attributes, to provide the metadata for 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.

9.5.59 @journal-id-type Type of Journal Identifier

Type of journal identifier or the authority that created a particular journal 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 identifies the organization or service who assigned the identifier (for example, "index" to indicate an abstracting or indexing service) or names the type of identifier (for example, "doi").

9.5.60 @kwd-group-type Keyword Authority

This attribute is used with two different definitions.

- The most common is the name of the thesaurus, ontology, or organization that established a particular group of keywords, for example, "MESH", "ISO-463", "IEEE", "author-generated", "ICD9-codes", etc.
- The second usage describes the type of keyword for some of the more unusual keyword groups (for example, "hierarchical" for keywords that are grouped into a hierarchy, "abbreviations" for keywords that contain an abbreviation and its expansion, or "code" for keywords that contain a code and its text but where the source of the codes is unknown).

In element <kwd-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The source of keywords. This may be an organization (such as "IEEE") or the name of a thesaurus, subject index, or ontology (such as "MESH").

9.5.61 @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.

9.5.62 @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.

9.5.63 `@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.

9.5.64 `@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 ("`lower-alpha`" 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).

9.5.65 `@macros` Macros (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.66 `@mime-subtype` Mime Subtype

Mime subtype for a graphic, multimedia object, or piece of supplementary material.

In elements `<graphic>`, `<inline-graphic>`, `<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).

9.5.67 `@mimetype` Mime Type

Mime type for a graphic, multimedia object, or piece of supplementary material.

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In elements <graphic>, <inline-graphic>, <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.

9.5.68 @mode Mode (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.69 @name Name

This attribute can be used in several contexts:

- for use with the mathematics element (<mml:math>), see the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- for use with <private-char>, it contains the unique name for the private character being defined.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with <mml:math>, use MathML documentation.

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").

9.5.70 @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.

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9.5.71 @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.

9.5.72 @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".

9.5.73 @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 graphical object for a <related-object> element.

9.5.74 @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.

9.5.75 @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".

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9.5.76 @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>, <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.

9.5.77 @other Other (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.78 @overflow Overflow (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute will be assigned the value scroll by default.

Value	Meaning
elide	Use MathML documentation.
scale	Use MathML documentation.
scroll	Use MathML documentation.
truncate	Use MathML documentation.

9.5.79 @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.

The @page attribute can be used with the @vol, @issue, and @journal-id attributes to identify the related article <related-article>.

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 "35-583", or a letter/number combination, such as "46a" or "iii".

9.5.80 @person-group-type Type of People in the Person Group

Role of the persons being named in <person-group> element (for example, authors, editors, members of the G&S chorus).

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.
director	Directors.
editor	Content editors.
guest-editor	Content editors that have been invited to edit all or part of a work.
inventor	Idea, software, or machine creators.
transed	Editors of a translated version of a work.
translator	Persons who translated the cited work from one language into another.

9.5.81 @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, 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>, <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.

9.5.82 @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.

9.5.83 @preformat-type Type of Preformatted Text

Type of content contained in the <preformat> element (for example, computer code, poetry, pseudocode, ASCII art, XML tagging).

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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, "code" for sample computer code or "xml" for an XML-tagged data sample.

9.5.84 @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".

9.5.85 @pub-id-type Type of Publication Identifier

Type of publication identifier or the organization or system that defined the identifier.

This attribute is used in several contexts:

- as part of the article metadata (for example, on the <article-id> element, which holds an identifier for the entire article, or the <product> element);
- inside a bibliographic citation (for example, on the <pub-id> element, which identifies a publication cited in a bibliographic reference list);
- on an object identifier (for example, on the <object-id> element, which can act as an identifier for any number of different elements);
- on a related article or other related object (for example, on the <related-object> element); and
- on an issue or volume identifier (for example, on the <issue-id> element, which identifies an issue).

In elements <article-id> and <pub-id>, this attribute *may* be used if the element is used.

Value	Meaning
art-access-id	Generic article accession identifier for interchange and retrieval between archives.
arxiv	arXiv archive of electronic preprints.
coden	Obsolete PDB/CCDC identifier (may be present on older articles).
doaj	Directory of Open Access Journals.
doi	Digital Object Identifier.
isbn	International Standard Book Number.
manuscript	Identifier assigned to a manuscript.
medline	NLM Medline identifier.
other	None of the named identifiers in this list.
pii	Publisher Item Identifier.
pmcid	PubMed Central identifier.
pmid	PubMed ID; see http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed.
publisher-id	Publisher's identifier, such as an "article-id", "artnum", "identifier", "article-number", "pub-id", etc.

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Value	Meaning
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, et al., for example, "Z39.96-2012".

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 "doi" or name or type of organization that created the identifier "aggregator".

9.5.86 @pub-type Type of Publication

A combination 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 print publication.

The combination of format and medium in one attribute is a holdover from previous versions of this Tag Set. In *this* version of this Tag Set, there are two attributes that can be used to describe the history dates and publication dates of articles. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media to which the event happened, such as "print". In previous versions of this Tag Set, the two types of information were combined, so an attribute could say that an article was "ecorrected", meaning that the article was in electronic form and that it was corrected. In this Tag Set, the attribute @date-type would take the value "corrected" and the @publication-format attribute would take the value "electronic" to convey the same information.

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.

9.5.87 @publication-format Format of Publication

Format or medium of the document (for example, "print"). This element is used in two senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

For use in Dates: In this version of this Tag Set, there are two attributes that can be used to describe history dates and publication dates. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media, for example, "print" or "electronic", to which the event happened.

In elements <date>, <element-citation>, <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".

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9.5.88 @publication-type Type of Referenced Publication

Category of publication being cited (for example, “book”, “letter”, “review”, “journal”, “patent”, “report”, “standard”, “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” or “patent”.

9.5.89 @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”.

9.5.90 @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.

9.5.91 @ref-type Type of Cross-Reference

Type of element that is the target of the cross-reference (for example, “figure”, “author-note”, “bibliographic-reference”). The values may be used 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.
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).
boxed-text	Textbox or sidebar.
chem	Chemical structure (to a <chem-struct> or <chem-struct-wrap> element).
contrib	Contributor.
corresp	Corresponding author.

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Value	Meaning
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.
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.

9.5.92 @related-article-type Type of Related Article

Type of article being described by the element (for example, "companion-article", "corrected-article", "retracted-article").

The <related-article> element describes (and may point to) another article that bears some relationship to the original article. This attribute describes (names the type of) the article being pointed to.

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".

9.5.93 @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.

9.5.94 @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".

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9.5.95 @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 <aff>, <author-notes>, <award-group>, <award-id>, <bio>, <contrib>, <def>, <funding-source>, <funding-statement>, <named-content>, <sig>, <sig-block>, <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.

9.5.96 @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 XHMTL 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”.

9.5.97 @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 XHMTL 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.

9.5.98 @scope Scope (NISO JATS table model)

Specifies the cells for which the <td> element provides header information. This provides an alternative to using explicitly named header elements (<th>) if the arrangement of header cells is not complex. (This attribute is based on and intended to be converted easily to the XHMTL scope attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
col	Provides header information for the rest of a column.
colgroup	Provides header information for the rest of a column group (i.e., the remaining cells within the <colgroup> element).

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Value	Meaning
row	Provides header information for the rest of a row.
rowgroup	Provides header information for the rest of a row group (i.e., the remaining cells of the current <thead>, <tfoot>, or <tbody>).

9.5.99 @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.

9.5.100 @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.

For journals (such as continuous-makeup journals) where more than one article can start on a single page, this attribute can record a sequence number or letter to differentiate one article from the other articles on the same page. For example, the first article to start on page 62 might be given a sequence of "62a"; the sequence letter would be "a", with a sequence letter "b" for a second article, etc.

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.

9.5.101 @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 <related-object> .

9.5.102 @source-id-type Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, PII, 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	The type of identifier that names the source of the related object, for example, a DOI.

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9.5.103 @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>)
- 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".

9.5.104 @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 XHMTL 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".

9.5.105 @specific-use Specific Use

Specifies distinctions in the applicability of a particular element.

This Tag Set does not limit the uses of the @specific-use attribute. For example, @specific-use could be used to mark content (such as a paragraph, note, or section) that:

- only appears in one format ("web-only", "print-only", "voice-only", "electronic-only");
- is intended for a particular audience (the set "for-teachers" versus the set for "for-students" or the sets "for-doctors", "for-nurses", or "for-the-patient");
- is organization-sensitive material ("company-only" or "limited-distribution") and thus not shown to all audiences;
- has a specific use that cannot be determined from the content of the material, for example, is part of continuing medical or legal education ("CME"); or
- contains an accessibility alternative that screen readers could "read" but that visual display devices would ignore. (See also the @alt attribute.)

In elements <abbrev>, <abbrev-journal-title>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <alt-text>, <alt-title>, <annotation>, <anonymous>, <app>, <app-group>, <array>, <article>, <article-id>, <attrib>, <author-comment>, <author-notes>, <award-group>, <award-id>, <bio>, <body>, <bold>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-

id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <country>, <custom-meta>, <date>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <etal>, <ext-link>, <fax>, <fig>, <fig-group>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <isbn>, <issn-l>, <issn>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <overline>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <phone>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-id>, <publisher-loc>, <publisher-name>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <roman>, <sans-serif>, <sc>, <season>, <sec>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <statement>, <std>, <strike>, <string-name>, <styled-content>, <std-organization>, <sub>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <table-wrap>, <table-wrap-group>, <target>, <term>, <textual-form>, <time-stamp>, <title>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <uri>, <verse-group>, <verse-line>, <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".

9.5.106 @style Style (NISO JATS table model; MathML 2.0 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>), records XHTML classes or similar styling information;
- with many of the elements within a NISO JATS table(<table>), records the name of the style to be applied to the element; or
- with <mml:math>, use as defined in the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set (http://www.w3.org/TR/MathML2 [http://www.w3.org/TR/MathML2/]).

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 element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	As described in the MathML documentation.

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In element <styled-content>, 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.

9.5.107 @style-type Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In element <styled-content>, 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".

9.5.108 @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.

9.5.109 @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 XHMTL 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.

9.5.110 @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 or reason for the supplement, for example, "conference" or "issue".

9.5.111 @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 element <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 "†".

9.5.112 `@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-references 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.

9.5.113 `@type` Type (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.114 `@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.

9.5.115 `@units` Units

The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value might 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`".

9.5.116 `@valign` Vertical 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 XHMTL `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.

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Value	Meaning
top	Cell data is flush with the top of the cell.

9.5.117 `@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.

9.5.118 `@vol` Volume of Related Article

Volume of the journal in which a related journal article exists.

The `@vol` attribute can be used, along with the `@journal-id`, `@issue`, and `@page` attributes, to provide the metadata for a related journal article.

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.

9.5.119 `@width` Width (NISO JATS table model; MathML 2.0 Tag Set)

This attribute can be used in several contexts:

- within the mathematics element (`<mml:math>`). Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) this attribute should be used 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.

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Integer number pixels or a percentage of the display area	For use with `<mml:math>`, use MathML documentation.

9.5.120 `@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).

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In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

9.5.121 @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>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (which may be a URL) to a resource.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <mixed-citation>, <mml:math>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

9.5.122 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

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9.5.123 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

9.5.124 @xlink:title Title of the Link

Describes the function of a link's remote resource in human-readable fashion.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

9.5.125 @xlink:type Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links (except the <mml:math> element), this attribute may be either omitted or set to the word "simple", which means that the link is a simple, one-ended link. For the <mml:math> element, the attribute may take any value that describes the link type, for example, a "simple" (one-ended) link, a "locator" link, a "title" link, an "extended" (multi-way) link, etc.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive name for the type of link present, for example, "simple" for an XML simple (one-ended) link, "extended" for a multi-way link, etc.

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In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

9.5.126 @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 2.0 Tag Set.

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 2.0 Tag Set.

9.5.127 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <custom-meta>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

9.5.128 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but a namespace pseudo-attribute. The value provides a prefix to use for the MathML @xsi:schemaLocation attribute. 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).

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Value	Meaning
http://www.w3.org/2001/XMLSchema-instance	The prefix "xsi" has been set to the URL of the W3C XML Schema.

9.5.129 @xml:lang Language

The language of the intellectual content of the element for which this is an attribute.

Typical values are described by the IETF RFC 5646, two-letter, lower-case language codes such as "fr" (French), "en" (English), "de" (German), and "zh" (Chinese). These values are **NOT** case sensitive, but current best practice uses all lower case. Values can be obtained from the IANA Language Subtag Registry: http://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>, <app>, <app-group>, <array>, <article-title>, <attrib>, <author-comment>, <award-group>, <award-id>, <bio>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <copyright-holder>, <copyright-statement>, <corresp>, <country>, <custom-meta>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <etal>, <ext-link>, <fig>, <fig-group>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <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>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <pub-date>, <publisher-loc>, <publisher-name>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <season>, <sec>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <size>, <source>, <speaker>, <speech>, <statement>, <std>, <string-name>, <styled-content>, <std-organization>, <sub-article>, <subj-group>, <subtitle>, <suffix>, <supplement>, <supplementary-material>, <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>, <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").

9.5.130 `@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 `<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.).

9.5.131 `@xref` Cross-Reference (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to another MathML element. Use MathML documentation.

9.5.132 `@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.

9.5.133 `@xsi:schemaLocation` Schema Location (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

9.5.134 `@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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10 Article Authoring Tag Set

10.1 Rationale

The Article Authoring Tag Set ("Authoring") creates a standardized format for new journal articles that can be used by authors to submit publications to journals and to archives such as PubMed Central. While in theory the document scope is the same as for the Publishing Tag Set, in practice Authoring defines elements and attributes that describe the content of typical research-style journal articles.

This is a Tag Set optimized for authorship of new journal articles, where regularization and control of content is important, and where it is useful rather than harmful to have only one way to tag a structure. Therefore, Authoring is more prescriptive than descriptive and includes many elements whose content must occur in a specified order.

Since an author is assumed to be creating and submitting an article for submission to a journal or journals, no publishing history or journal-specific information has been included in this Authoring Tag Set.

Since no assumptions can be made concerning the processing software or editorial situation that will receive an article authored in this Tag Set, tagging that forces specific formatting has also been avoided. There is no way for an author to number his/her lists explicitly, for example, or to manually number the cited references, since many journals have their own citation policies and publication styles. Numbers for the cited references must be generated by the publisher's software to match editorial policy and established practice.

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, 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.

10.3 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:

- 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.

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.

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

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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

The following, in order:
- `<title>` **Title**, zero or one

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- <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:

@content-type **Type of Content**
@specific-use **Specific Use**

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, 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 **Identifier**
@specific-use **Specific Use**
@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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**
- <country> **Country: in an Address**
- <fax> **Fax Number: in an Address**
- <institution> **Institution Name: in an Address**
- <phone> **Phone Number: in an Address**

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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<institution>` **Institution Name: in an Address**, zero or one
- `<addr-line>` **Address Line**, zero or more
- `<country>` **Country: in an Address**
- `<phone>` **Phone Number: in an Address**, zero or more
- `<fax>` **Fax Number: in an Address**, zero or more
- `<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` **Identifier**
`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<addr-line>` **Address Line**
- `<country>` **Country: in an Address**
- `<fax>` **Fax Number: in an Address**
- `<institution>` **Institution Name: in an Address**
- `<phone>` **Phone Number: in an Address**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<break>` **Line Break**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<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` **Identifier**

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Content model:

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

10.4.9 <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 graphic or figure.

Attributes:

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

Content model:

Text, numbers, or special characters

10.4.10 <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.

Content model:

One or more of any of:

- <chem-struct> **Chemical Structure (Display)**
- <graphic> **Graphic**
- <inline-graphic> **Graphic, Inline**
- <inline-supplementary-material> **Inline Supplementary Material**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <private-char> **Private Character (Custom or Unicode)**
- <supplementary-material> **Supplementary Material**
- <table> **Table (NISO JATS table model)**
- <textual-form> **Textual Form**
- <mml:math> **Math (MathML 2.0 Tag Set)**

10.4.11 <annotation> Annotation in a Citation

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

10.4.12 <anonymous> Anonymous

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

This is an EMPTY element

10.4.13 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- The following, in order:
  - <title> **Title**
  - Any combination of:
    - <boxed-text> **Boxed Text**
    - <chem-struct-wrap> **Chemical Structure Wrapper**
    - <fig> **Figure**
    - <graphic> **Graphic**
    - <media> **Media Object**
    - <preformat> **Preformatted Text**
    - <supplementary-material> **Supplementary Material**
    - <table-wrap> **Table Wrapper**
    - <disp-formula> **Formula, Display**
    - <disp-formula-group> **Formula, Display Group**
    - <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

10.4.14 <app-group> Appendix Group

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

Attributes:

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

Content model:

The following, in order:

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

10.4.15 <article> Article

A journal article.

Attributes:

@article-type **Type of Article**
@dtd-version **Version of the Tag Set (DTD)**
@specific-use **Specific Use**
@xmlns:mml **MathML Namespace Declaration**
@xmlns:xlink **XLink Namespace Declaration**
@xmlns:xsi **XML Schema Namespace Declaration**

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`@xml:lang` **Language**

Content model:

The following, in order:

- `<front>` **Front Matter**
- `<body>` **Body of the Document**
- `<back>` **Back Matter**, zero or one

10.4.16 `<article-meta>` Article Metadata

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

Content model:

The following, in order:

- `<title-group>` **Title Group**
- `<contrib-group>` **Contributor Group**
- Any combination of:
  - `<product>` **Product Information**
  - `<supplementary-material>` **Supplementary Material**
- `<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
- `<conference>` **Conference Information**, zero or more

10.4.17 `<article-title>` Article Title

Full title of an article.

Attributes:

`@id` **Identifier**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- `<inline-graphic>` **Graphic, Inline**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<abbrev>` **Abbreviation or Acronym**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**

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- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

10.4.18 <attrib> Attribution

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.19 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

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

Content model:

The following, in order:

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

10.4.20 <award-group> Award Group

Container element for information concerning one award under which the work (or the research on which the work was based) was supported.

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Attributes:

`@award-type` **Type of Award**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<funding-source>` **Funding Source**, zero or more
- `<award-id>` **Award Identifier**, zero or more
- `<principal-award-recipient>` **Principal Award Recipient**, zero or more
- `<principal-investigator>` **Principal Investigator**, zero or more

10.4.21 `<award-id>` Award Identifier

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

Attributes:

`@rid` **Reference to an Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.22 `<back>` Back Matter

Material published with an article but following the narrative flow.

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

10.4.23 `<bio>` Biography

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

Attributes:

`@content-type` **Type of Content**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

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Content model:

The following, in order:

- <title> **Title**, zero or one
- Any combination of:
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <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

10.4.24 <body> Body of the Document

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

Content model:

The following, in order:

- Any combination of:
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <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

10.4.25 <bold> Bold

Used to mark text that should appear in bold face.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

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

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- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.26 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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:
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <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
- <attrib> **Attribution**, zero or one

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- <permissions> **Permissions**, zero or one

10.4.27 <break> Line Break

An explicit line break in the text.

Content model:

This is an EMPTY element

10.4.28 <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>).

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@xml:lang **Language**

Content model:

The following, in order:

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

10.4.29 <chapter-title> Chapter Title in a Citation

Title of a cited book chapter.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.30 <chem-struct> Chemical Structure (Display)

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

Attributes:

@content-type **Type of Content**
@id **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<alt-text>` **Alternate Text Name (for a figure, etc.)**
- `<long-desc>` **Long Description**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<break>` **Line Break**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<object-id>` **Object Identifier**
- `<def-list>` **Definition List**
- `<list>` **List**
- `<graphic>` **Graphic**
- `<media>` **Media Object**
- `<preformat>` **Preformatted Text**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.31 `<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` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@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:
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
- One or more of any of:
  - `<alternatives>` **Alternatives For Processing**
  - `<chem-struct>` **Chemical Structure (Display)**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**

    - <textual-form> **Textual Form**
- <attrib> **Attribution**, zero or one
- <permissions> **Permissions**, zero or one

10.4.32 <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.

Content model:

One or more of any of:
- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**

10.4.33 <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> these attributes will be inherited from the associated <colgroup>. (This element is based on and intended to be converted easily to the XHMTL 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 **Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

This is an EMPTY element

10.4.34 <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 XHMTL 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 **Identifier**
@span **Span (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**

Content model:

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

10.4.35 <collab> Collaborative (Group) Author

Group of contributors credited under a single name; includes an organization credited as a contributor.

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Attributes:

`@collab-type` **Type of Collaboration**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<addr-line>` **Address Line**
- `<country>` **Country: in an Address**
- `<fax>` **Fax Number: in an Address**
- `<institution>` **Institution Name: in an Address**
- `<phone>` **Phone Number: in an Address**
- `<address>` **Address/Contact Information**
- `<aff>` **Affiliation**
- `<aff-alternatives>` **Affiliation Alternatives**
- `<author-comment>` **Author Comment**
- `<bio>` **Biography**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<on-behalf-of>` **On Behalf of**
- `<role>` **Role or Function Title of Contributor**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<xref>` **X (cross) Reference**

10.4.36 `<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.

Content model:

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

10.4.37 `<comment>` Comment in a Citation

Container element for unstructured text within a bibliographic reference.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.38 <compound-kwd> Compound Keyword

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

Attributes:

@content-type **Type of Content**
@id **Identifier**

Content model:

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

10.4.39 <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**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**

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- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.40 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.41 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

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

Content model:

Text, numbers, or special characters, zero or more

10.4.42 <conf-loc> Conference Location

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.43 <conf-name> Conference Name

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.44 <conf-num> Conference Number

Sequential number of a conference.

Attributes:

@content-type **Type of Content**

`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.45 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.46 <conf-theme> Conference Theme

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- `<inline-graphic>` **Graphic, Inline**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<abbrev>` **Abbreviation or Acronym**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.47 <conference> Conference Information

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

Attributes:

`@content-type` **Type of Content**
`@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**
`@xmlns:xlink` **XLink Namespace Declaration**

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`@xml:lang` **Language**

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

10.4.48 `<contrib>` Contributor

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

Attributes:

`@contrib-type` **Type of Contribution**
`@corresp` **Corresponding Author**
`@deceased` **Deceased**
`@equal-contrib` **Equal Contribution**
`@id` **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**
`@xmlns:xlink` **XLink Namespace Declaration**

Content model:

The following, in order:

- `<contrib-id>` **Contributor Identifier**, zero or more
- Any combination of:
  - `<anonymous>` **Anonymous**
  - `<collab>` **Collaborative (Group) Author**
  - `<collab-alternatives>` **Collaboration Alternatives**
  - `<name>` **Name of Person**
  - `<name-alternatives>` **Name Alternatives**
- `<degrees>` **Degree(s)**, zero or more
- `<role>` **Role or Function Title of Contributor**, zero or one
- `<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
- `<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

10.4.49 `<contrib-group>` Contributor Group

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

Attributes:

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

`@specific-use` **Specific Use**

Content model:

`<contrib>` **Contributor**, one or more

10.4.50 `<contrib-id>` Contributor Identifier

One identifier for a person such as a contributor or principal investigator. This element will hold an ORCID, a trusted publisher's identifier, a JST (Japanese Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:

`@content-type` **Type of Content**
`@contrib-id-type` **Contributor Identifier Type**
`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters

10.4.51 `<copyright-holder>` Copyright Holder

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.52 `<copyright-statement>` Copyright Statement

Copyright notice or statement, suitable for printing or display.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

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10.4.53 <copyright-year> Copyright Year

The year of copyright.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

10.4.54 <country> Country: in an Address

Country name used within an address.

Attributes:

@content-type **Type of Content**
@country **Country**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.55 <date> Date

Container element for the parts of a single calendar date.

Attributes:

@calendar **Calendar**
@date-type **Type of Date**
@iso-8601-date **ISO-8601 Formatted Date**
@publication-format **Format of Publication**
@specific-use **Specific Use**

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**

10.4.56 <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**
@iso-8601-date **ISO-8601 Formatted Date**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <day> **Day**
- <month> **Month**
- <season> **Season**
- <year> **Year**

10.4.57 <day> Day

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.58 <def> Definition List: Definition

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

Attributes:

@id **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

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

10.4.59 <def-head> Definition List: Definition Head

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

Content model:

Any combination of:
- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.60 <def-item> Definition List: Definition Item

Container element for one term/definition pair in a definition list.

Attributes:

@id **Identifier**

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`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<term>` **Definition List: Term**
- `<def>` **Definition List: Definition**, zero or more

10.4.61 `<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` **Identifier**
`@list-content` **List Content**
`@list-type` **Type of List**
`@prefix-word` **Prefix Word (For a List Item)**
`@specific-use` **Specific Use**
`@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

10.4.62 `<degrees>` Degree(s)

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

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.63 `<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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<alt-text>` **Alternate Text Name (for a figure, etc.)**
- `<long-desc>` **Long Description**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<break>` **Line Break**
- `<bold>` **Bold**
- `<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**
- <attrib> **Attribution**
- <permissions> **Permissions**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <label> **Label (of an Equation, Figure, Reference, etc.)**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <sub> **Subscript**
- <sup> **Superscript**

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

Container element for equations or other mathematical expressions.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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:
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
  - <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**

10.4.65 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**, zero or one
- <p> **Paragraph**, one or more
- <attrib> **Attribution**, zero or one
- <permissions> **Permissions**, zero or one

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10.4.66 <edition> Edition Statement, Cited

The full edition statement for a cited or referenced publication.

Attributes:

@content-type **Type of Content**
@designator **Designator of the Edition**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.67 <element-citation> Element Citation

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

Attributes:

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

Content model:

One or more of any of:

- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <date> **Date**

- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- <email> **Email Address**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <ext-link> **External Link**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <uri> **Uniform Resource Identifier (URI)**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.68 <elocation-id> Electronic Location Identifier

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

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

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10.4.69 <email> Email Address

Electronic mail address of a person or institution.

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.70 <etal> Et Al.

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.71 <ext-link> External Link

Link to an external file or resource.

Attributes:

@ext-link-type **Type of External Link**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**

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- <sup> **Superscript**

10.4.72 <fax> Fax Number: in an Address

Portion of an address that contains a fax number.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

10.4.73 <fig> Figure

Block of graphic 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 **Identifier**
@orientation **Orientation**
@position **Position**
@specific-use **Specific Use**
@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:
  - <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**
  - <def-list> **Definition List**
  - <list> **List**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
- <attrib> **Attribution**, zero or one
- <permissions> **Permissions**, zero or one

10.4.74 <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:

@fn-type **Type of Footnote**
@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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Content model:

Any one of:

- <p> **Paragraph**, one or more

10.4.75 <fn-group> Footnote Group

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

Attributes:

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

Content model:

The following, in order:

- <title> **Title**, zero or one
- <fn> **Footnote**, one or more

10.4.76 <fpage> First Page

Page number on which a document starts.

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.77 <front> Front Matter

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

Content model:

<article-meta> **Article Metadata**

10.4.78 <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:

@specific-use **Specific Use**
@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

10.4.79 <funding-source> Funding Source

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

Attributes:

@country **Country**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.80 <funding-statement> Funding Statement

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

Attributes:

@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.81 <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:

@initials **Initials for Personal Names**

Content model:

Text, numbers, or special characters, zero or more

10.4.82 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

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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

10.4.83 <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 **Identifier**
@resolution **Resolution of the Glyph Bitmap**
@xml:space **Space**
@x-size **X Size of the Glyph**
@y-size **Y Size of the Glyph**

Content model:

Text, numbers, or special characters

10.4.84 <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**

Content model:

This is an EMPTY element

10.4.85 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**

- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.86 <graphic> Graphic

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or one
- Any combination of:
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Zero or more occurrences of the following, in order:
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.87 <hr> Horizontal Rule

An explicit horizontal rule.

Content model:

This is an EMPTY element

10.4.88 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <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**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.89 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any one of:
- <alt-text> **Alternate Text Name (for a figure, etc.)**, zero or one

10.4.90 <inline-supplementary-material> Inline Supplementary Material

Description of and inline pointer to an external file that provides supplementary information for the document.

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <alt-text> **Alternate Text Name (for a figure, etc.)**
- <long-desc> **Long Description**
- <email> **Email Address**

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- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.91 <institution> Institution Name: in an Address

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

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**

10.4.92 <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:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

10.4.93 <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:

@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

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10.4.94 <issn> ISSN

International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:

@pub-type **Type of Publication**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

10.4.95 <issue> Issue Number

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

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.96 <issue-id> Issue Identifier

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

Attributes:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.97 <issue-part> Issue Part

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.98 <issue-title> Issue Title

Theme or special title for a journal issue.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.99 <italic> Italic

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

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Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.100 <journal-id> Journal Identifier

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

Attributes:

@journal-id-type **Type of Journal Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.101 <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 the 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:

@content-type **Type of Content**
@id **Identifier**

Content model:

Any combination of:

- Text, numbers, or special characters

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- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.102 <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:

@id **Identifier**
@kwd-group-type **Keyword Authority**
@specific-use **Specific Use**
@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**

10.4.103 <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**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.104 <license> License Information

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

Attributes:

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

Content model:

Any one of:

- <license-p> **License Paragraph**, one or more

10.4.105 <license-p> License Paragraph

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <fig> **Figure**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material**
- <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <citation-alternatives> **Citation Alternatives**
- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <inline-graphic> **Graphic, Inline**
- <private-char> **Private Character (Custom or Unicode)**
- <def-list> **Definition List**
- <list> **List**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <abbrev> **Abbreviation or Acronym**
- <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**
- <fn> **Footnote**
- <target> **Target of an Internal Link**

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- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <price> **Price**

10.4.106 <list> List

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

Attributes:

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

Content model:

The following, in order:
- <title> **Title**, zero or one
- <list-item> **List Item**, one or more

10.4.107 <list-item> List Item

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

Attributes:

@id **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

<p> **Paragraph**, one or more

10.4.108 <long-desc> Long Description

Full description or summary of the content of an object such as a graphic, table, figure, or text box.

Attributes:

@content-type **Type of Content**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.109 <lpage> Last Page

Page number on which a document ends.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.110 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

The following, in order:

- <object-id> **Object Identifier**, zero or one
- Any combination of:
  - <alt-text> **Alternate Text Name (for a figure, etc.)**
  - <long-desc> **Long Description**
- Zero or more occurrences of the following, in order:
  - <attrib> **Attribution**, zero or one
  - <permissions> **Permissions**, zero or one

10.4.111 <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:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <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**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- <email> **Email Address**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <ext-link> **External Link**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**

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- <trans-title> **Translated Title**
- <uri> **Uniform Resource Identifier (URI)**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.112 <mml:math> Math (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

Attributes:

@altimg **Alternate Image (MathML 2.0 Tag Set)**
@alttext **Alternate Text (MathML 2.0 Tag Set)**
@baseline **Baseline (MathML 2.0 Tag Set)**
@class **Class (MathML 2.0 Tag Set)**
@display **Display (MathML 2.0 Tag Set)**
@height **Height (MathML 2.0 Tag Set)**
@id **Identifier**
@macros **Macros (MathML 2.0 Tag Set)**
@mode **Mode (MathML 2.0 Tag Set)**
@name **Name**
@other **Other (MathML 2.0 Tag Set)**
@overflow **Overflow (MathML 2.0 Tag Set)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@type **Type (MathML 2.0 Tag Set)**
@width **Width (NISO JATS table model; MathML 2.0 Tag Set)**
@xlink:href **Href (Linking Mechanism)**
@xlink:type **Type of Link**
@xmlns:mml **MathML Namespace Declaration**
@xref **Cross-Reference (MathML 2.0 Tag Set)**
@xsi:schemaLocation **Schema Location (MathML 2.0 Tag Set)**

10.4.113 <monospace> Monospace Text (Typewriter Text)

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

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**

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- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.114 <month> Month

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.115 <name> Name of Person

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

Attributes:

@content-type **Type of Content**
@name-style **Name Style**
@specific-use **Specific Use**
@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

10.4.116 <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).

Content model:

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

10.4.117 <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**
@id **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**
`@xmlns:xlink` **XLink Namespace Declaration**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<boxed-text>` **Boxed Text**
- `<chem-struct-wrap>` **Chemical Structure Wrapper**
- `<fig>` **Figure**
- `<graphic>` **Graphic**
- `<media>` **Media Object**
- `<preformat>` **Preformatted Text**
- `<supplementary-material>` **Supplementary Material**
- `<table-wrap>` **Table Wrapper**
- `<disp-formula>` **Formula, Display**
- `<disp-formula-group>` **Formula, Display Group**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<inline-graphic>` **Graphic, Inline**
- `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<def-list>` **Definition List**
- `<list>` **List**
- `<mml:math>` **Math (MathML 2.0 Tag Set)**
- `<abbrev>` **Abbreviation or Acronym**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<disp-quote>` **Quote, Displayed**
- `<speech>` **Speech**
- `<statement>` **Statement, Formal**
- `<verse-group>` **Verse Form for Poetry**

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10.4.118 <nested-kwd> Nested Keyword

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

Attributes:

@content-type **Type of Content**
@id **Identifier**

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

10.4.119 <nlm-citation> NLM Citation

This element is deprecated; avoid using it. Use <element-citation>.

Attributes:

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

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

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- 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

10.4.120 <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:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

10.4.121 <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:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.122 <open-access> Open Access

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

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any one of:

- <p> **Paragraph**, one or more

10.4.123 <overline> Overline

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

Attributes:

@specific-use **Specific Use**

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Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.124 <p> Paragraph

Textual unit or block; a textual paragraph.

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <boxed-text> **Boxed Text**
- <chem-struct-wrap> **Chemical Structure Wrapper**
- <fig> **Figure**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <supplementary-material> **Supplementary Material**
- <table-wrap> **Table Wrapper**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <citation-alternatives> **Citation Alternatives**

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- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <award-id> **Award Identifier**
- <funding-source> **Funding Source**
- <open-access> **Open Access**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <inline-graphic> **Graphic, Inline**
- <private-char> **Private Character (Custom or Unicode)**
- <def-list> **Definition List**
- <list> **List**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <abbrev> **Abbreviation or Acronym**
- <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**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.125 <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**

Content model:

This is an EMPTY element

10.4.126 <page-range> Page Ranges

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

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.127 <part-title> Part Title in a Citation

Title of part of a book (for example, chapter, module) described in a bibliographic reference.

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Attributes:

`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.128 `<patent>` Patent Number, Cited

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

Attributes:

`@content-type` **Type of Content**
`@country` **Country**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.129 `<permissions>` Permissions

Container element for copyright and license information.

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
- `<license>` **License Information**, zero or more

10.4.130 `<person-group>` Person Group for a Cited Publication

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

Attributes:

`@id` **Identifier**
`@person-group-type` **Type of People in the Person Group**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<anonymous>` **Anonymous**
- `<collab>` **Collaborative (Group) Author**
- `<collab-alternatives>` **Collaboration Alternatives**
- `<name>` **Name of Person**

- <name-alternatives> **Name Alternatives**
- <aff> **Affiliation**
- <aff-alternatives> **Affiliation Alternatives**
- <etal> **Et Al.**
- <role> **Role or Function Title of Contributor**
- <string-name> **Name of Person (Unstructured)**

10.4.131 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

10.4.132 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.133 <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 **Identifier**
@orientation **Orientation**
@position **Position**
@preformat-type **Type of Preformatted Text**
@specific-use **Specific Use**
@xml:lang **Language**
@xml:space **Space**

Content model:

Any combination of:

- Text, numbers, or special characters
- <alt-text> **Alternate Text Name (for a figure, etc.)**
- <long-desc> **Long Description**
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <attrib> **Attribution**
- <permissions> **Permissions**
- <bold> **Bold**
- <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**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.134 <price> Price

Sale price or licensing fees of a work.

Attributes:

@content-type **Type of Content**
@currency **Currency**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**

10.4.135 <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:

@specific-use **Specific Use**
@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**
- <string-name> **Name of Person (Unstructured)**

10.4.136 <principal-investigator> Principal Investigator

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

Attributes:

@specific-use **Specific Use**
@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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10.4.137 <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**
@name **Name**
@specific-use **Specific Use**

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

10.4.138 <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:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <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**

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- <collab> **Collaborative (Group) Author**
- <collab-alternatives> **Collaboration Alternatives**
- <comment> **Comment in a Citation**
- <conf-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- <email> **Email Address**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <ext-link> **External Link**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**
- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <uri> **Uniform Resource Identifier (URI)**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

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

Identifier of a publication in a bibliographic reference or product.

Attributes:

@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**

Content model:

Text, numbers, or special characters

10.4.140 <publisher-loc> Publisher's Location

Place of publication, usually a city, such as New York or London.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.141 <publisher-name> Publisher's Name

Name of the person, company, or other entity that published a work.

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.142 <ref> Reference Item

One item in a bibliographic list.

Attributes:

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

Content model:

One or more of any of:

- <citation-alternatives> **Citation Alternatives**
- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**

10.4.143 <ref-list> Reference List (Bibliographic)

List of bibliographic references for a document or document component.

Attributes:

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

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10.4.144 <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**
@id **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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <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-date> **Conference Date**
- <conf-loc> **Conference Location**
- <conf-name> **Conference Name**
- <conf-sponsor> **Conference Sponsor**
- <date> **Date**
- <date-in-citation> **Date within a Citation**
- <day> **Day**
- <edition> **Edition Statement, Cited**
- <email> **Email Address**
- <elocation-id> **Electronic Location Identifier**
- <etal> **Et Al.**
- <ext-link> **External Link**
- <fpage> **First Page**
- <gov> **Government Report, Cited**
- <institution> **Institution Name: in an Address**

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- <isbn> **ISBN**
- <issn> **ISSN**
- <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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <uri> **Uniform Resource Identifier (URI)**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.145 <related-object> Related Object Information

Description of an object (for example, book chapter, figure, table) related to the content but published separately. May include a link to the related object.

Attributes:

@content-type **Type of Content**
@document-id **Document Identifier**
@document-id-type **Document Identifier Type**
@document-type **Document Type**
@ext-link-type **Type of External Link**
@id **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**

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

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<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-date>` **Conference Date**
- `<conf-loc>` **Conference Location**
- `<conf-name>` **Conference Name**
- `<conf-sponsor>` **Conference Sponsor**
- `<date>` **Date**
- `<date-in-citation>` **Date within a Citation**
- `<day>` **Day**
- `<edition>` **Edition Statement, Cited**
- `<email>` **Email Address**
- `<elocation-id>` **Electronic Location Identifier**
- `<etal>` **Et Al.**
- `<ext-link>` **External Link**
- `<fpage>` **First Page**
- `<gov>` **Government Report, Cited**
- `<institution>` **Institution Name: in an Address**
- `<isbn>` **ISBN**
- `<issn>` **ISSN**
- `<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-name> **Name of Person (Unstructured)**
- <supplement> **Supplement Information**
- <trans-source> **Translated Source**
- <trans-title> **Translated Title**
- <uri> **Uniform Resource Identifier (URI)**
- <volume> **Volume Number**
- <volume-id> **Volume Identifier**
- <volume-series> **Volume Series**
- <year> **Year**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.146 <role> Role or Function Title of Contributor

Title or role of a contributor to a work (for example, editor-in-chief, chief scientist, photographer, research associate).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.147 <roman> Roman

Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**

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- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.148 <sans-serif> Sans Serif

Used to mark text that should appear in a sans-serif font.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.149 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

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

- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.150 <season> Season

Season of publication (for example, Spring, Third Quarter).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters

10.4.151 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:

@id **Identifier**
@sec-type **Type of Section**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

The following, in order:

- <title> **Title**
- Any combination of:
  - <boxed-text> **Boxed Text**
  - <chem-struct-wrap> **Chemical Structure Wrapper**
  - <fig> **Figure**
  - <graphic> **Graphic**
  - <media> **Media Object**
  - <preformat> **Preformatted Text**
  - <supplementary-material> **Supplementary Material**
  - <table-wrap> **Table Wrapper**
  - <disp-formula> **Formula, Display**
  - <disp-formula-group> **Formula, Display Group**
  - <def-list> **Definition List**
  - <list> **List**
  - <p> **Paragraph**
  - <disp-quote> **Quote, Displayed**
  - <speech> **Speech**
  - <statement> **Statement, Formal**
  - <verse-group> **Verse Form for Poetry**

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- <sec> **Section**, zero or more

10.4.152 <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, printed article and in its expanded version with additional graphics available online).

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.153 <series> Series

Series information about a journal or book in a bibliographic reference or product.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.154 <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:

@specific-use **Specific Use**
@units **Units**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.155 <source> Source

Title of a document (for example, journal, book, conference proceedings) that contains (is the source of) the material being cited in a bibliographic reference or product.

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.156 `<speaker>` Speaker

One who utters one segment of a speech or dialog.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**
`@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**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**

10.4.157 `<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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

The following, in order:

- `<speaker>` **Speaker**
- `<p>` **Paragraph**, one or more

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10.4.158 <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 **Identifier**
@specific-use **Specific Use**
@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
- <p> **Paragraph**, one or more
- Any combination of:
  - <attrib> **Attribution**
  - <permissions> **Permissions**

10.4.159 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <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**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.160 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.161 <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**
@name-style **Name Style**
@specific-use **Specific Use**
@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**

10.4.162 <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**
@specific-use **Specific Use**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@style-type **Style Type**

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`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<inline-supplementary-material>` **Inline Supplementary Material**
- `<related-article>` **Related Article Information**
- `<related-object>` **Related Object Information**
- `<boxed-text>` **Boxed Text**
- `<chem-struct-wrap>` **Chemical Structure Wrapper**
- `<fig>` **Figure**
- `<graphic>` **Graphic**
- `<media>` **Media Object**
- `<preformat>` **Preformatted Text**
- `<supplementary-material>` **Supplementary Material**
- `<table-wrap>` **Table Wrapper**
- `<disp-formula>` **Formula, Display**
- `<disp-formula-group>` **Formula, Display Group**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<inline-graphic>` **Graphic, Inline**
- `<private-char>` **Private Character (Custom or Unicode)**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<def-list>` **Definition List**
- `<list>` **List**
- `<mml:math>` **Math (MathML 2.0 Tag Set)**
- `<abbrev>` **Abbreviation or Acronym**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<disp-quote>` **Quote, Displayed**
- `<speech>` **Speech**
- `<statement>` **Statement, Formal**
- `<verse-group>` **Verse Form for Poetry**

10.4.163 `<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` **Identifier**
`@specific-use` **Specific Use**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <sub> **Subscript**
- <sup> **Superscript**

10.4.164 <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**
@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.165 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <bold> **Bold**
- <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**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

10.4.166 <suffix> Suffix

Qualifiers that follow a person's name (for example, Sr., Jr., III, 3rd).

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.167 <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**
@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**

- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.168 <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:

@specific-use **Specific Use**
@supplement-type **Type of Supplement**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <contrib-group> **Contributor Group**
- <title> **Title**

10.4.169 <supplementary-material> Supplementary Material

Container element for description of and pointer to additional data files that contain information directly supportive of the document (for example, audio clip, applet, raw research data).

Attributes:

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

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`@xlink:type` **Type of Link**
`@xmlns:xlink` **XLink Namespace Declaration**
`@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:
  - `<alt-text>` **Alternate Text Name (for a figure, etc.)**
  - `<long-desc>` **Long Description**
  - `<email>` **Email Address**
  - `<ext-link>` **External Link**
  - `<uri>` **Uniform Resource Identifier (URI)**
- `<p>` **Paragraph**, zero or more
- `<attrib>` **Attribution**, zero or one
- `<permissions>` **Permissions**, zero or one

10.4.170 `<surname>` Surname

Surname of a person.

Attributes:

`@initials` **Initials for Personal Names**

Content model:

Text, numbers, or special characters, zero or more

10.4.171 `<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 XHMTL `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` **Identifier**
`@rules` **Rules (NISO JATS table model)**
`@style` **Style (NISO JATS table model; MathML 2.0 Tag Set)**
`@summary` **Summary (NISO JATS table model)**
`@width` **Width (NISO JATS table model; MathML 2.0 Tag Set)**

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

10.4.172 `<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.

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Attributes:

`@content-type` **Type of Content**
`@id` **Identifier**
`@orientation` **Orientation**
`@position` **Position**
`@specific-use` **Specific Use**
`@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:
  - `<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**
  - `<def-list>` **Definition List**
  - `<list>` **List**
  - `<alternatives>` **Alternatives For Processing**
  - `<chem-struct-wrap>` **Chemical Structure Wrapper**
  - `<graphic>` **Graphic**
  - `<media>` **Media Object**
  - `<preformat>` **Preformatted Text**
  - `<table>` **Table (NISO JATS table model)**
- `<table-wrap-foot>` **Table Wrapper Footer**, zero or one
- `<attrib>` **Attribution**, zero or one
- `<permissions>` **Permissions**, zero or one

10.4.173 `<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.

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**
  - `<attrib>` **Attribution**
  - `<permissions>` **Permissions**

10.4.174 `<target>` Target of an Internal Link

Anchor or fixed location that acts as the target for a cross-reference.

Attributes:

`@id` **Identifier**
`@specific-use` **Specific Use**
`@target-type` **Type of Target**
`@xml:lang` **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- `<bold>` **Bold**
- `<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**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.175 <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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

10.4.176 <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 XHMTL 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 **Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <hr> **Horizontal Rule**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- <citation-alternatives> **Citation Alternatives**

- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <def-list> **Definition List**
- <list> **List**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <inline-graphic> **Graphic, Inline**
- <private-char> **Private Character (Custom or Unicode)**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.177 <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 **Identifier**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <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**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.178 <term-head> Definition List: Term Head

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

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.179 <textual-form> Textual Form

This element holds text (mixed content) in places where alternatives can be presented, providing a textual alternative. For example, inside the <alternatives> wrapper element, a <textual-form> can provide an alternative version of an equation, graphic, or table. This alternative textual version may be a direct textual representation of an object (such as a Unicode value for a special character or the full text of an equation in ASCII characters), or a simplified textual version of the object (for display by devices not able to cope with the object), or a text-dump of the contents of a binary object (for example, the full text-dump of the cells of a table to accompany a graphical version of the table).

Attributes:

@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <inline-graphic> **Graphic, Inline**
- <private-char> **Private Character (Custom or Unicode)**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.180 <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 XHMTL `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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

10.4.181 <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 XHMTL `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 **Identifier**
@rowspan **Row Span (NISO JATS table model)**
@scope **Scope (NISO JATS table model)**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**

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- <uri> **Uniform Resource Identifier (URI)**
- <hr> **Horizontal Rule**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <disp-formula> **Formula, Display**
- <disp-formula-group> **Formula, Display Group**
- <break> **Line Break**
- <citation-alternatives> **Citation Alternatives**
- <element-citation> **Element Citation**
- <mixed-citation> **Mixed Citation**
- <nlm-citation> **NLM Citation**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <def-list> **Definition List**
- <list> **List**
- <mml:math> **Math (MathML 2.0 Tag Set)**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <graphic> **Graphic**
- <media> **Media Object**
- <preformat> **Preformatted Text**
- <inline-graphic> **Graphic, Inline**
- <private-char> **Private Character (Custom or Unicode)**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.182 <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 XHMTL 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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

<tr> **Table Row (NISO JATS table model)**, one or more

10.4.183 <time-stamp> Time Stamp for Cited Work

This element is deprecated; avoid using it. Use <date-in-citation>.

Attributes:

`@content-type` **Type of Content**
`@specific-use` **Specific Use**

Content model:

Text, numbers, or special characters, zero or more

10.4.184 `<title>` Title

Heading or title for a structural element (for example, `<sec>`, `<app>`, `<boxed-text>`).

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- `<email>` **Email Address**
- `<ext-link>` **External Link**
- `<uri>` **Uniform Resource Identifier (URI)**
- `<bold>` **Bold**
- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<alternatives>` **Alternatives For Processing**
- `<inline-graphic>` **Graphic, Inline**
- `<chem-struct>` **Chemical Structure (Display)**
- `<inline-formula>` **Formula, Inline**
- `<abbrev>` **Abbreviation or Acronym**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<fn>` **Footnote**
- `<target>` **Target of an Internal Link**
- `<xref>` **X (cross) Reference**
- `<sub>` **Subscript**
- `<sup>` **Superscript**
- `<break>` **Line Break**
- `<citation-alternatives>` **Citation Alternatives**
- `<element-citation>` **Element Citation**
- `<mixed-citation>` **Mixed Citation**
- `<nlm-citation>` **NLM Citation**

10.4.185 `<title-group>` Title Group

Container element to hold the various titles for a document or a document component.

Content model:

The following, in order:

- `<article-title>` **Article Title**
- `<subtitle>` **Document Subtitle**, zero or one

10.4.186 `<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 XHMTL `tr` element.)

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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 **Identifier**
@style **Style (NISO JATS table model; MathML 2.0 Tag Set)**
@valign **Vertical Alignment (NISO JATS table model)**

Content model:

One or more of any of:

- <th> **Table Header Cell (NISO JATS table model)**
- <td> **Table Data Cell (NISO JATS table model)**

10.4.187 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <sub> **Subscript**
- <sup> **Superscript**

10.4.188 <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 **Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

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

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- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**
- <break> **Line Break**

10.4.189 <underline> Underline

Used to mark text that should appear with a horizontal line beneath it.

Attributes:

@specific-use **Specific Use**

Content model:

Any combination of:

- Text, numbers, or special characters
- <email> **Email Address**
- <ext-link> **External Link**
- <uri> **Uniform Resource Identifier (URI)**
- <inline-supplementary-material> **Inline Supplementary Material**
- <related-article> **Related Article Information**
- <related-object> **Related Object Information**
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**
- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**
- <sub> **Subscript**
- <sup> **Superscript**

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10.4.190 <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>http://www.mulberrytech.com</uri>).

Attributes:

@content-type **Type of Content**
@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**
@xmlns:xlink **XLink Namespace Declaration**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.191 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:

@content-type **Type of Content**
@id **Identifier**
@specific-use **Specific Use**
@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
- <attrib> **Attribution**, zero or one
- <permissions> **Permissions**, zero or one

10.4.192 <verse-line> Line of a Verse

One line of a poem or verse.

Attributes:

@content-type **Type of Content**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:

- Text, numbers, or special characters
- <bold> **Bold**
- <italic> **Italic**
- <monospace> **Monospace Text (Typewriter Text)**
- <overline> **Overline**
- <roman> **Roman**
- <sans-serif> **Sans Serif**
- <sc> **Small Caps**
- <strike> **Strike Through**
- <underline> **Underline**
- <alternatives> **Alternatives For Processing**
- <inline-graphic> **Graphic, Inline**
- <chem-struct> **Chemical Structure (Display)**
- <inline-formula> **Formula, Inline**

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- <abbrev> **Abbreviation or Acronym**
- <named-content> **Named Special (Subject) Content**
- <styled-content> **Styled Special (Subject) Content**
- <sub> **Subscript**
- <sup> **Superscript**
- <fn> **Footnote**
- <target> **Target of an Internal Link**
- <xref> **X (cross) Reference**

10.4.193 <volume> Volume Number

Number of a journal (or other document) within a series.

Attributes:

@content-type **Type of Content**
@seq **Sequence**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.194 <volume-id> Volume Identifier

Name or identifier (for example, DOI) that describes an entire volume.

Attributes:

@content-type **Type of Content**
@pub-id-type **Type of Publication Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.195 <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**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Text, numbers, or special characters, zero or more

10.4.196 <xref> X (cross) Reference

Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:

@alt **Alternative Text**
@id **Identifier**
@ref-type **Type of Cross-Reference**
@rid **Reference to an Identifier**
@specific-use **Specific Use**
@xml:lang **Language**

Content model:

Any combination of:
- Text, numbers, or special characters
- <bold> **Bold**

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- `<italic>` **Italic**
- `<monospace>` **Monospace Text (Typewriter Text)**
- `<overline>` **Overline**
- `<roman>` **Roman**
- `<sans-serif>` **Sans Serif**
- `<sc>` **Small Caps**
- `<strike>` **Strike Through**
- `<underline>` **Underline**
- `<named-content>` **Named Special (Subject) Content**
- `<styled-content>` **Styled Special (Subject) Content**
- `<sub>` **Subscript**
- `<sup>` **Superscript**

10.4.197 `<year>` Year

Numerical, 4-digit year.

Attributes:

`@calendar` **Calendar**
`@content-type` **Type of Content**
`@iso-8601-date` **ISO-8601 Formatted Date**
`@specific-use` **Specific Use**
`@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:

- 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 XHMTL `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`").

This Tag Set does not prescribe values for this attribute, so any type of abstract that an author records can be preserved.

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 XHMTL `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 textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.

10.5.5 `@altimg` Alternate Image (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

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10.5.6 @alttext Alternate Text (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.7 @arrange Arrangement of Subscripts and Superscripts

Indicates whether multiple subscripts or 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 or superscripts should be placed one above the other as compactly as possible.
stagger	The multiple subscripts or superscripts should be stretched out in a line.

10.5.8 @article-type Type of Article

Type or kind of article (for example, “research”, “commentary”, “review”, “case”, or “calendar”).

This attribute can be used to attach information classes to articles for grouping or searching. An archive may use this, for example, to preserve the publisher’s classification of an article.

Use for primary article — When the article is a commentary on another article (for example, a correction or addendum), this attribute contains metadata concerning the commentary itself; it does *not* define the kind of article that is being corrected or amended.

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”.

10.5.9 @award-type Type of Award

Type or kind of award (for example, “grant” or “contract”).

In element <award-group>, 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”.

10.5.10 @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 XHMTL 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.

10.5.11 `@baseline` Baseline (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.12 `@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.

10.5.13 `@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 XHMTL `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.

10.5.14 `@calendar` Calendar

Name of the calendar used in naming a date such as a publication date, for example, "`Gregorian`", "`Japanese`" (Emperor years), or "`Islamic`".

In elements `<conf-date>`, `<date>`, `<date-in-citation>`, 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`".

10.5.15 `@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 XHMTL `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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10.5.16 `@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 XHMTL `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.

10.5.17 `@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 XHMTL `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.

10.5.18 `@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 XHMTL `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).

10.5.19 `@class` Class (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, number, or special characters	Use MathML documentation.

10.5.20 `@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`”.

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10.5.21 `@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 XHMTL `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`".

10.5.22 `@content-type` Type of Content

Subject or type of content that makes this element semantically distinct.

In element `<named-content>`, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Names/describes the distinct function for the `<named-content>` that cannot otherwise be described by the elements in this Tag Set. For example, a medical article might use the value "`body-system`" or "`gene`" while a management article might use the value "`product-name`" or "`stock-code`".

In elements `<abbrev>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<alt-text>`, `<annotation>`, `<app>`, `<app-group>`, `<author-comment>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chem-struct>`, `<chem-struct-wrap>`, `<col>`, `<colgroup>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<country>`, `<date-in-citation>`, `<day>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<elocation-id>`, `<email>`, `<fax>`, `<fn-group>`, `<fpage>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-supplementary-material>`, `<institution>`, `<isbn>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-title>`, `<kwd>`, `<license-p>`, `<long-desc>`, `<lpage>`, `<media>`, `<month>`, `<name>`, `<nested-kwd>`, `<object-id>`, `<p>`, `<page-range>`, `<patent>`, `<phone>`, `<prefix>`, `<price>`, `<ref>`, `<ref-list>`, `<related-object>`, `<role>`, `<season>`, `<self-uri>`, `<series>`, `<source>`, `<speaker>`, `<speech>`, `<statement>`, `<std>`, `<string-name>`, `<std-organization>`, `<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>`, `<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.

10.5.23 `@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.

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10.5.24 @contrib-id-type Contributor Identifier Type

Names the type of contributor identifier or the authority that is responsible for the creation of the contributor identifier.

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".

10.5.25 @contrib-type Type of Contribution

Type of contribution made by the individual (for example, "author", "editor", "illustrator", "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".

10.5.26 @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.

10.5.27 @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".

10.5.28 @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>, and <patent>, 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.

10.5.29 @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.

10.5.30 @date-type Type of Date

Event in the lifecycle of an article that this date is marking (for example, the date the manuscript was received or accepted, the date the electronic preprint was published, or the date of any revision or retraction).

In this Tag Set, this attribute is likely to be used very rarely. It can only be used on a <date> element when that element is used in a citation. Since <date>s in citations are used to mark the primary publication date, the usual value is likely to be "date-type="pub-date"".

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.

10.5.31 @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.

10.5.32 @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".

10.5.33 @designator Designator of the Edition

The edition number as an unadorned numeric or alphabetic value.

In element <edition>, this attribute *may* be used if the element is used.

Value	Meaning
The numeral or alphabetic character that indicates the edition number	The straight unadorned edition number, for machine processing. Typically this is a number such as "4" or an alphabetic character such as "A".

10.5.34 @display Display (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

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In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.35 @document-id Document Identifier

Identifier of a document 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>).

10.5.36 @document-id-type Document Identifier Type

Type of document identifier (for example, a DOI, PII, or a publisher's identifier).

In element <related-object>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The type of document identifier involved for a related object (<related-object>).

10.5.37 @document-type Document Type

Type of document being described by 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 type of related object, for example, "article" for a journal article.

10.5.38 @dtd-version Version of the Tag Set (DTD)

Version of the Tag Set that should be used to validate this article.

In element <article>, this attribute *must* have the value 1.0 (as given below).

Value	Meaning
1.0	The NISO JATS 1.0 version of the Article Authoring Tag Set is being used.

10.5.39 @elocation-id Elocation Identifier

Bibliographic identifier for a document 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.

10.5.40 @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.

10.5.41 @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"), 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, "ftp" or "uri".

10.5.42 @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".

10.5.43 @fn-type Type of Footnote

Type of information conveyed in the footnote (for example, contributor's current affiliation, financial disclosure statement, reprint information).

There are many reasons why the text or metadata of an article might be footnoted. Where those reasons are known (for example, the reasons are listed in the suggested values list below), this attribute can preserve that information. This could be a means of preserving, for example, that a contributor is on a leave of absence.

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.
conflict	Conflict of interest statements.
corresp	Corresponding author information not identified separately, but merely footnoted.
current-aff	Contributor's current affiliation.
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.

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Value	Meaning
other	Some footnote type, other than those enumerated.
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.

10.5.44 `@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.

10.5.45 `@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.

10.5.46 `@format` Format

Name of the image format for the bitmap that is provided with a `<glyph-data>` element. This 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.

10.5.47 `@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 XHMTL `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).

Value	Meaning
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).

10.5.48 `@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.

10.5.49 `@headers` Headers (NISO JATS table model)

List of `@id`s for table data and header cells. (This attribute is based on and intended to be converted easily to the XHMTL `headers` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.

Value	Meaning
One or more identifiers (IDREFS)	Points to (contains) a list of one or more `ID`s of rows and columns that supply header information.

10.5.50 `@height` Height (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Number	The height of the mathematical object. Use MathML documentation.

10.5.51 `@id` Identifier

Unique identifier of an element; allows element to be cross-referenced. 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`.

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In elements <abbrev>, <abstract>, <ack>, <address>, <aff>, <aff-alternatives>, <alt-text>, <app>, <app-group>, <article-title>, <attrib>, <author-comment>, <award-group>, <bio>, <boxed-text>, <caption>, <chem-struct>, <chem-struct-wrap>, <col>, <colgroup>, <collab>, <compound-kwd>, <contrib>, <contrib-group>, <def>, <def-item>, <def-list>, <disp-formula>, <disp-formula-group>, <disp-quote>, <element-citation>, <ext-link>, <fig>, <fn>, <fn-group>, <funding-source>, <glossary>, <glyph-data>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <kwd>, <kwd-group>, <list>, <list-item>, <long-desc>, <media>, <mixed-citation>, <mml:math>, <named-content>, <nested-kwd>, <nlm-citation>, <p>, <person-group>, <preformat>, <product>, <ref>, <ref-list>, <related-article>, <related-object>, <sec>, <source>, <speech>, <statement>, <std-organization>, <supplementary-material>, <table>, <table-wrap>, <tbody>, <td>, <term>, <tfoot>, <th>, <thead>, <title>, <tr>, <trans-source>, <trans-title>, <verse-group>, and <xref>, 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.

10.5.52 @initials Initials for Personal Names

Initial(s) for the surname or the given names of a person.

Initials are recorded for purposes of searching or ease of conversion to applications that require initials rather than full names.

This attribute is optional and need not be used by organizations that do not ordinarily record contributor's initials. The intent is to provide a place to preserve the initials for publishers who do determine the person's initials editorially and then record that in their data, so this intellectual effort will not be lost.

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 given names.

10.5.53 @issue Issue Number of a Related Article

Issue number of a journal which contains the related article.

The @issue attribute can be used, along with the @vol, @journal-id, and @page attributes, to provide the metadata for 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".

10.5.54 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date ("YYYY-MM-DDThh:mm:ss") value for a date that may be specified as text, as a partial date, or as any other date format that cannot be guaranteed to be machine-processable.

In elements <conf-date>, <date>, <date-in-citation>, 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 for the date given in the element: "YYYY-MM-DDThh:mm:ss".

10.5.55 @journal-id Journal Identifier of a Related Article

Identifier for the journal that contains the related article.

The @journal-id attribute can be used, along with the @vol, @issue, and @page attributes, to provide the metadata for 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.

10.5.56 @journal-id-type Type of Journal Identifier

Type of journal identifier or the authority that created a particular journal 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 identifies the organization or service who assigned the identifier (for example, "index" to indicate an abstracting or indexing service) or names the type of identifier (for example, "doi").

10.5.57 @kwd-group-type Keyword Authority

This attribute is used with two different definitions.

- The most common is the name of the thesaurus, ontology, or organization that established a particular group of keywords, for example, "MESH", "ISO-463", "IEEE", "author-generated", "ICD9-codes", etc.
- The second usage describes the type of keyword for some of the more unusual keyword groups (for example, "hierarchical" for keywords that are grouped into a hierarchy, "abbreviations" for keywords that contain an abbreviation and its expansion, or "code" for keywords that contain a code and its text but where the source of the codes is unknown).

In element <kwd-group>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	The source of keywords. This may be an organization (such as "IEEE") or the name of a thesaurus, subject index, or ontology (such as "MESH").

10.5.58 @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.

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10.5.59 `@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.

10.5.60 `@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.

10.5.61 `@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 ("`lower-alpha`" 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
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.

10.5.62 `@macros` Macros (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.63 `@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-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).

10.5.64 @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-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.

10.5.65 @mode Mode (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.66 @name Name

This attribute can be used in several contexts:

- for use with the mathematics element (<mml:math>), see the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- for use with <private-char>, it contains the unique name for the private character being defined.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	For use with <mml:math>, use MathML documentation.

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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").

10.5.67 @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.

10.5.68 @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 graphical object for a <related-object> element.

10.5.69 @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.

10.5.70 @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".

10.5.71 @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 <boxed-text>, <chem-struct-wrap>, <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.

10.5.72 @other Other (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.73 @overflow Overflow (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element <mml:math>, this attribute will be assigned the value scroll by default.

Value	Meaning
elide	Use MathML documentation.
scale	Use MathML documentation.
scroll	Use MathML documentation.
truncate	Use MathML documentation.

10.5.74 @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.

The @page attribute can be used with the @vol, @issue, and @journal-id attributes to identify the related article <related-article>.

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 "35-583", or a letter/number combination, such as "46a" or "iii".

10.5.75 @person-group-type Type of People in the Person Group

Role of the persons being named in <person-group> element (for example, authors, editors, members of the G&S chorus).

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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.
director	Directors.
editor	Content editors.
guest-editor	Content editors that have been invited to edit all or part of a work.
inventor	Idea, software, or machine creators.
transed	Editors of a translated version of a work.
translator	Persons who translated the cited work from one language into another.

10.5.76 @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, 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>, <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.

10.5.77 @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.

10.5.78 @preformat-type Type of Preformatted Text

Type of content contained in the <preformat> element (for example, computer code, poetry, pseudocode, ASCII art, XML tagging).

Many journal tag sets make a distinction between different types of preformatted text (some by means of attributes, others with distinct elements). In this Tag Set, all these figure types will be tagged using the <preformat> element. The distinctions between different types of preformatted text can be preserved using the @preformat-type attribute, for example, by recording the content type of the text, such as "computer code".

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, "code" for sample computer code or "xml" for an XML-tagged data sample.

10.5.79 @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".

10.5.80 @pub-id-type Type of Publication Identifier

Type of publication identifier or the organization or system that defined the identifier.

This attribute is used in two contexts:

- inside a bibliographic citation (for example, on the <pub-id> element, which identifies a publication cited in a bibliographic reference list); and
- on an object identifier (for example, on the <object-id> element, which can act as an identifier for any number of different elements).

In element <pub-id>, this attribute *may* be used if the element is used.

Value	Meaning
art-access-id	Generic article accession identifier for interchange and retrieval between archives.
arxiv	arXiv archive of electronic preprints.
coden	Obsolete PDB/CCDC identifier (may be present on older articles).
doaj	Directory of Open Access Journals.
doi	Digital Object Identifier.
isbn	International Standard Book Number.
manuscript	Identifier assigned to a manuscript.
medline	NLM Medline identifier.
other	None of the named identifiers.
pii	Publisher Item Identifier.
pmcid	PubMed Central identifier.
pmid	PubMed ID; see http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed.
publisher-id	Publisher's identifier, such as an "article-id", "artnum", "identifier", "article-number", "pub-id", etc.

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Value	Meaning
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, et al., for example, "Z39.96-2012".

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 "doi"or name or type of organization that created the identifier "pmcid" (PubMed Central identifier).

10.5.81 @pub-type Type of Publication

A combination 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 print publication.

The combination of format and medium in one attribute is a holdover from previous versions of this Tag Set. In *this* version of this Tag Set, there are two attributes that can be used to describe the history dates and publication dates of articles. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media to which the event happened, such as "print". In previous versions of this Tag Set, the two types of information were combined, so an attribute could say that an article was "ecorrected", meaning that the article was in electronic form and that it was corrected. In this Tag Set, the attribute @date-type would take the value "corrected" and the @publication-format attribute would take the value "electronic" to convey the same information.

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.

10.5.82 @publication-format Format of Publication

Format or medium of the document (for example, "print"). This element is used in two senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

For use in Dates: In this version of this Tag Set, there are two attributes that can be used to describe history dates and publication dates. The @date-type attribute records the type of event in the lifecycle, such as "accepted", "published", or "revised" dates. In addition, the @publication-format attribute records the type of format or media, for example, "print" or "electronic", to which the event happened.

In elements <date>, <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 cited format, for example, "print".

10.5.83 @publication-type Type of Referenced Publication

Category of publication being cited (for example, “book”, “letter”, “review”, “journal”, “patent”, “report”, “standard”, “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” or “patent”.

10.5.84 @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”.

10.5.85 @ref-type Type of Cross-Reference

Type of element that is the target of the cross-reference (for example, “figure”, “author-note”, “bibliographic-reference”). The values may be used 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.
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).
boxed-text	Textbox or sidebar.
chem	Chemical structure (to a <chem-struct> or <chem-struct-wrap> element).
contrib	Contributor.
corresp	Corresponding author.
disp-formula	Display formula.
fig	Figure (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.
plate	Plate.
scheme	Scheme.

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Value	Meaning
sec	Section.
statement	Statement.
supplementary-material	Supplementary information.
table	Table (to a `<table-wrap>` element).
table-fn	Table footnote.

10.5.86 `@related-article-type` Type of Related Article

Type of article being described by the element (for example, "`companion-article`", "`corrected-article`", "`retracted-article`").

The `<related-article>` element describes (and may point to) another article that bears some relationship to the original article. This attribute describes (names the type of) the article being pointed to.

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`".

10.5.87 `@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.

10.5.88 `@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 `<aff>`, `<award-group>`, `<award-id>`, `<bio>`, `<contrib>`, `<def>`, `<funding-source>`, `<funding-statement>`, `<named-content>`, `<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.

10.5.89 `@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 XHMTL `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`".

10.5.90 `@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 XHMTL `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.

10.5.91 @scope Scope (NISO JATS table model)

Specifies the cells for which the <td> element provides header information. This provides an alternative to using explicitly named header elements (<th>) if the arrangement of header cells is not complex. (This attribute is based on and intended to be converted easily to the XHMTL scope attribute.)

In elements <td> and <th>, this attribute *may* be used if the element is used.

Value	Meaning
col	Provides header information for the rest of a column.
colgroup	Provides header information for the rest of a column group (i.e., the remaining cells within the <colgroup> element).
row	Provides header information for the rest of a row.
rowgroup	Provides header information for the rest of a row group (i.e., the remaining cells of the current <thead>, <tfoot>, or <tbody>).

10.5.92 @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.

10.5.93 @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.

For journals (such as continuous-makeup journals) where more than one article can start on a single page, this attribute can record a sequence number or letter to differentiate one article from the other articles on the same page. For example, the first article to start on page 62 might be given a sequence of "62a"; the sequence letter would be "a", with a sequence letter "b" for a second article, etc.

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.

10.5.94 @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 <related-object> .

10.5.95 @source-id-type Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, PII, 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	The type of identifier that names the source of the related object, for example, a DOI.

10.5.96 @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>)
- 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”.

10.5.97 @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 XHMTL 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”.

10.5.98 `@specific-use` Specific Use

Specifies distinctions in the applicability of a particular element.

This Tag Set does not limit the uses of the `@specific-use` attribute. For example, `@specific-use` could be used to mark content (such as a paragraph, note, or section) that:

- only appears in one format (“`web-only`”, “`print-only`”, “`voice-only`”, “`electronic-only`”);
- is intended for a particular audience (the set “`for-teachers`” versus the set for “`for-students`” or the sets “`for-doctors`”, “`for-nurses`”, or “`for-the-patient`”);
- is organization-sensitive material (“`company-only`” or “`limited-distribution`”) and thus not shown to all audiences;
- has a specific use that cannot be determined from the content of the material, for example, is part of continuing medical or legal education (“`CME`”); or
- contains an accessibility alternative that screen readers could “`read`” but that visual display devices would ignore. (See also the `@alt` attribute.)

In elements `<abbrev>`, `<abstract>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<alt-text>`, `<annotation>`, `<anonymous>`, `<app>`, `<app-group>`, `<article>`, `<attrib>`, `<author-comment>`, `<award-group>`, `<award-id>`, `<bio>`, `<bold>`, `<boxed-text>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<collab>`, `<comment>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib>`, `<contrib-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<country>`, `<date>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elocation-id>`, `<email>`, `<etal>`, `<ext-link>`, `<fax>`, `<fig>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<isbn>`, `<issn-l>`, `<issn>`, `<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>`, `<overline>`, `<p>`, `<page-range>`, `<part-title>`, `<patent>`, `<person-group>`, `<phone>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<private-char>`, `<product>`, `<pub-id>`, `<publisher-loc>`, `<publisher-name>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<role>`, `<roman>`, `<sans-serif>`, `<sc>`, `<season>`, `<sec>`, `<self-uri>`, `<series>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<statement>`, `<std>`, `<strike>`, `<string-name>`, `<styled-content>`, `<std-organization>`, `<sub>`, `<subtitle>`, `<suffix>`, `<sup>`, `<supplement>`, `<supplementary-material>`, `<table-wrap>`, `<target>`, `<term>`, `<textual-form>`, `<time-stamp>`, `<title>`, `<trans-source>`, `<trans-title>`, `<underline>`, `<uri>`, `<verse-group>`, `<verse-line>`, `<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`”.

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10.5.99 `@style` Style (NISO JATS table model; MathML 2.0 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>`), records XHTML classes or similar styling information;
- with many of the elements within a NISO JATS table(`<table>`), records the name of the style to be applied to the element; or
- with `<mml:math>`, use as defined in the documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set (http://www.w3.org/TR/MathML2 [http://www.w3.org/TR/MathML2/]).

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 element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	As described in the MathML documentation.

In element `<styled-content>`, 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.

10.5.100 `@style-type` Style Type

Description or explanation of the stylistic difference being recorded (for example, illuminated letters, drop cap).

In element `<styled-content>`, 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`".

10.5.101 `@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 XHMTL `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.

10.5.102 `@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 or reason for the supplement, for example, "`conference`" or "`issue`".

10.5.103 `@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-references 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.

10.5.104 `@type` Type (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.105 `@units` Units

The units of measure in which the size or length of a cited work is expressed (for example, a `@units` value might 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`".

10.5.106 `@valign` Vertical 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 XHMTL `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.

10.5.107 `@vol` Volume of Related Article

Volume of the journal in which a related journal article exists.

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The @vol attribute can be used, along with the @journal-id, @issue, and @page attributes, to provide the metadata for a related journal article.

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.

10.5.108 @width Width (NISO JATS table model; MathML 2.0 Tag Set)

This attribute can be used in several contexts:

- within the mathematics element (<mml:math>). Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/)
- within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) this attribute should be used 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.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Integer number pixels or a percentage of the display area	For use with <mml:math>, use MathML documentation.

10.5.109 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

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10.5.110 @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>, and <media>, this attribute *must* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A pointer (which may be a URL) to a resource.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <mixed-citation>, <mml:math>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

10.5.111 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

10.5.112 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

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Value	Meaning
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.

10.5.113 `@xlink:title` Title of the Link

Describes the function of a link's remote resource in human-readable fashion.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

10.5.114 `@xlink:type` Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links (except the <mml:math> element), this attribute may be either omitted or set to the word "simple", which means that the link is a simple, one-ended link. For the <mml:math> element, the attribute may take any value that describes the link type, for example, a "simple" (one-ended) link, a "locator" link, a "title" link, an "extended" (multi-way) link, etc.

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	A descriptive name for the type of link present, for example, "simple" for an XML simple (one-ended) link, "extended" for a multi-way link, etc.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, this attribute *may* be used if the element is used.

Value	Meaning
simple	The link is an XML simple (one-ended) link.

10.5.115 `@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 2.0 Tag Set.

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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 2.0 Tag Set.

10.5.116 @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>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, and <uri>, 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.

10.5.117 @xmlns:xsi XML Schema Namespace Declaration

This is not an attribute, but a namespace pseudo-attribute. The value provides a prefix to use for the MathML @xsi:schemaLocation attribute. 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.

10.5.118 @xml:lang Language

The language of the intellectual content of the element for which this is an attribute.

Typical values are described by the IETF RFC 5646, two-letter, lower-case language codes such as "fr" (French), "en" (English), "de" (German), and "zh" (Chinese). These values are **NOT** case sensitive, but current best practice uses all lower case. Values can be obtained from the IANA Language Subtag Registry: http://www.iana.org/assignments/language-subtag-registry.

In element <article>, this attribute will be assigned the value en by default.

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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>, <annotation>, <anonymous>, <app>, <app-group>, <article-title>, <attrib>, <author-comment>, <award-group>, <award-id>, <bio>, <boxed-text>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <copyright-holder>, <copyright-statement>, <country>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <etal>, <ext-link>, <fig>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <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>, <p>, <page-range>, <part-title>, <patent>, <person-group>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <publisher-loc>, <publisher-name>, <ref>, <ref-list>, <related-article>, <related-object>, <role>, <season>, <sec>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <statement>, <std>, <string-name>, <styled-content>, <std-organization>, <subtitle>, <suffix>, <supplement>, <supplementary-material>, <table-wrap>, <target>, <term>, <textual-form>, <trans-source>, <trans-title>, <uri>, <verse-group>, <verse-line>, <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").

10.5.119 @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 <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.).

10.5.120 @xref Cross-Reference (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element <mml:math>, this attribute *may* be used if the element is used.

Value	Meaning
An identifier (IDREF)	Points to another MathML element. Use MathML documentation.

10.5.121 `@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.

10.5.122 `@xsi:schemaLocation` Schema Location (MathML 2.0 Tag Set)

Use documentation for the Mathematical Markup Language (MathML) 2.0 Tag Set. (http://www.w3.org/TR/MathML2/).

In element `<mml:math>`, this attribute *may* be used if the element is used.

Value	Meaning
Text, numbers, or special characters	Use MathML documentation.

10.5.123 `@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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