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 November 19, 2015
by the
American National Standards Institute

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

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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: 978-1-937522-68-1 (HTML)
ISBN: 978-1-937522-69-8 (PDF)
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Foreword

(This foreword is not part of the ANSI/NISO Z39.96-2015 standard, JATS: Journal Article Tag Suite. It is included for information only.)

About This Standard

This Standard was first published in 2012 and revised in 2015. This 2015 revision is JATS Version 1.1 of the Standard. In addition to the element and attribute descriptions, three journal article tag sets have been provided as part of NISO JATS.

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

2015 Edition

The NISO JATS: Journal Article Tag Suite Version 1.1 is a revision of NISO Z39.96-2012, which was published in July 2012. The NISO JATS 1.0 standard was the intellectual successor to NLM DTD version 3.0. Since the first version was released, there have been three non-normative Committee Draft versions: 1.1d1 (the first Committee Draft of version 1.1) in December 2013; 1.1d2 in December 2014; and 1.1d3 in April 2015. The current version (ANSI NISO Z39.96-2015) includes all of the changes made due to public comment on the three Committee Draft versions.

Comments on JATS 1.0 made through the NISO form through November 2015 have been addressed by the JATS Standing Committee and incorporated in this update. All of the changes accepted are backward compatible with JATS 1.0, which means that any document that was valid according to JATS 1.0 will be valid according to JATS 1.1. Details of the Standing Committee recommendations on the comments submitted are available in: http://www.niso.org/apps/org/workgroup/jats-sc/download.php/15323.

JATS 1.1: Continuous Maintenance

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

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

If a provision of the standard is proposed for addition, deletion, or modification, the text of the provision must be submitted in writing. Comments or proposals for revision to any part of the standard may be submitted to NISO at any time. Submissions must be accompanied by the submitter’s name, affiliation, telephone number, and email address. Comments may be submitted to NISO online at http://www.niso.org/apps/group_public/add_comment.php?document_id=10591. The Z39.96 Standing Committee reviews suggestions at least twice a year.

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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. A new tag set that is a subset of one of the tag sets described in the Standard should be considered “conforming” to the standard. By definition, documents valid to such a conforming subset would also be valid according to the JATS model that the subset is based on.

New tag sets may be built from the elements and attributes in the Tag Suite. Tag sets that add structures (elements and/or attributes) to those defined in the standard (leading to documents not valid according to one of the models in the standard) should be called “based on JATS”. Such tag sets are not considered “conforming” to the standard.

Similarly, tag sets that extend or loosen the models described in the standard, such that documents valid to these new tag sets may not be valid according to one of the models in the standard, should be called “based on JATS”. Such tag sets are also not considered “conforming” to the standard.

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

1. Schemas that represent the three Tag Sets — The schemas (available in DTD, W3C Schema, and RELAX NG syntax) are included in the non-normative supporting information and can be found on the JATS site at the National Library of Medicine (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:


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3. Tagging examples are included in the three Tag Libraries listed above.

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

2.1 The Journal Archive and Interchange Tag Set

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

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

2.2 The Journal Publishing Tag Set

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

2.3 The Article Authoring Tag Set

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

3 Format of this Standard

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

3.1 Description of the Tag Suite

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

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

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

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

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

- An indicator showing in which of the Tag Sets the attribute is used.
- The XML Name of the attribute. This is the name of the attribute used in tagging XML documents.
• An informational name for the attribute. This is often a longer or more formal name than the XML Name.
• The definition of the attribute.

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

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

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

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

Attribute entries contain:
• The XML Name of the attribute, duplicated from Section 7, Tag Suite Components.
• The informational name of the attribute, duplicated from Section 7, Tag Suite Components.
• The definition of the attribute, duplicated from Section 7, Tag Suite Components.
• Then, for each element or group of elements in the Tag Suite in which the attribute is identically defined,
  there is a block of usage information. Note that:
  ◦ Some attributes are used on many elements
Some attributes are used in the same way on all elements in a Tag Set, but some may have different optionality or contents on different elements in the same Tag Set.

For each usage block, the attribute entry contains:

- A list of the elements for which this block of information is relevant.
- A restrictions statement, which may have any of the following values:
  - “@pppp is an optional attribute; there is no default. (where "pppp" is the XML name of an attribute)”
  - “@pppp is required; it must be provided if the element is used. (where "pppp" is the XML name of an attribute)”
- A description of the allowed contents of the attribute, which will either be a description of the type of information allowed in the attribute or a table of allowed values and their meanings. If one of the allowed values is the default an additional column (Default) will appear in the table and an X will indicate which value is the default value for this attribute in this element usage block in this Tag Set.

4 Application Notes: Namespace for JATS Elements

There is no default namespace required for the elements and attributes in 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.


### 6 Definitions

<table>
<thead>
<tr>
<th>Term/Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI</td>
<td>American National Standards Institute. ANSI is a private nonprofit organization that oversees the development of voluntary consensus standards in the U.S.</td>
</tr>
<tr>
<td>ASCII</td>
<td>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.</td>
</tr>
<tr>
<td>attribute (an XML term)</td>
<td>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 <code>&lt;list&gt;</code> element. Each attribute has both a name (e.g., <code>@list-type</code>) and a value (e.g., “bullet”).</td>
</tr>
<tr>
<td>container element</td>
<td>An XML term of art that indicates that one element has other elements inside it, in a parent/child or ancestor/descendent relationship.</td>
</tr>
<tr>
<td>CrossRef</td>
<td>CrossRef is an independent membership association appointed as an official DOI® Registration Agency for scholarly and professional publications.</td>
</tr>
<tr>
<td>document type (an XML term)</td>
<td>A class of documents that can be described with a single XML model, for example, journal articles.</td>
</tr>
<tr>
<td>DOI®</td>
<td>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).</td>
</tr>
<tr>
<td>DTD (an XML term)</td>
<td>Document Type Definition. A DTD is a set of markup declarations that define a type of document in XML.</td>
</tr>
<tr>
<td>element (an XML term)</td>
<td>Elements are nouns, like “speech” and “speaker”, that represent components of journal articles, the articles themselves, and accompanying metadata.</td>
</tr>
<tr>
<td>element content (an XML term)</td>
<td>The content of an element that contains only other elements. For example, the element for article metadata (<code>&lt;article-meta&gt;</code>) allows no text; it is a container element for the many metadata elements that describe an article.</td>
</tr>
<tr>
<td>emoticon</td>
<td>Icon or small graphic used to depict emotion (for example, a “smiley face” to indicate happiness or laughter).</td>
</tr>
<tr>
<td>glyph</td>
<td>A graphical element used to represent a character.</td>
</tr>
<tr>
<td>JATS</td>
<td>NISO Journal Article Tag Suite.</td>
</tr>
<tr>
<td>LaTeX</td>
<td>A document preparation system for the TeX typesetting program.</td>
</tr>
<tr>
<td>Term/Acronym</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>MathML</td>
<td>A specification of the World Wide Web Consortium (W3C) for describing mathematical notation and capturing both its structure and content.</td>
</tr>
<tr>
<td>metadata</td>
<td>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.</td>
</tr>
<tr>
<td>milestone</td>
<td>A milestone is a marker for the beginning or end of a non-hierarchically nested object, that is, a textual component that cannot be expressed in the normal, non-overlapping, tree structure of an XML document.</td>
</tr>
<tr>
<td>mixed content (an XML term)</td>
<td>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.</td>
</tr>
<tr>
<td>PII</td>
<td>Publisher Item Identifier. A form of identifier based on the ISSN or ISBN.</td>
</tr>
<tr>
<td>pixel</td>
<td>In digital imaging, a pixel is a single point in a bitmap.</td>
</tr>
<tr>
<td>RELAX NG schema</td>
<td>A schema language for XML.</td>
</tr>
<tr>
<td>Schematron</td>
<td>A rule-based validation language used for making and testing assertions about an XML instance.</td>
</tr>
<tr>
<td>SICI</td>
<td>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.</td>
</tr>
<tr>
<td>STM</td>
<td>Scientific, Technical, and Medical. STM can be used to modify “publisher”, “journal”, “article”, etc.</td>
</tr>
<tr>
<td>tag set</td>
<td>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.</td>
</tr>
<tr>
<td>Tag Suite</td>
<td>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.</td>
</tr>
<tr>
<td>TeX</td>
<td>A typesetting system popular for setting mathematics and physical sciences content.</td>
</tr>
<tr>
<td>Unicode®</td>
<td>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.</td>
</tr>
<tr>
<td>Unicode Private Use Area</td>
<td>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.</td>
</tr>
<tr>
<td>URI</td>
<td>Uniform Resource Identifier. An identifier (such as a URL) that may be used as a live link, typically naming a website, such as: &lt;uri&gt;<a href="http://www.mulberrytech.com&amp;lt;/uri">http://www.mulberrytech.com&amp;lt;/uri</a>&gt;.</td>
</tr>
<tr>
<td>wrapper element</td>
<td>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.</td>
</tr>
<tr>
<td>XML (Extensible Markup Language)</td>
<td>A specification of the World Wide Web Consortium (W3C) for creating custom markup languages that enable information systems to share structured information.</td>
</tr>
<tr>
<td>XML term</td>
<td>A term defined in the XML specification or commonly used by the XML community in the context of XML applications.</td>
</tr>
</tbody>
</table>
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>`.

<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
<th>&lt;tag&gt; Element name</th>
<th>Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;abbrev&gt;</code> Abbreviation or Acronym</td>
<td>Abbreviation, acronym, or emoticon used in the text of a document, possibly including an expansion of the acronym.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;abbrev-journal-title&gt;</code> Abbreviated Journal Title</td>
<td>Short form of the title of the journal in which an article is published.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;abstract&gt;</code> Abstract</td>
<td>Summarized description of the content of a document or document component.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;access-date&gt;</code> Access Date for Cited Work</td>
<td>This element is deprecated; avoid using it. Use <code>&lt;date-in-citation&gt;</code>.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;ack&gt;</code> Acknowledgments</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;addr-line&gt;</code> Address Line</td>
<td>One physical or logical line of an address.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;address&gt;</code> Address/Contact Information</td>
<td>Container element for contact information such as a postal address for a person or organization.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;aff&gt;</code> Affiliation</td>
<td>Name of an institution or organization (for example, university, corporation) with which a contributor is affiliated.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;aff-alternatives&gt;</code> Affiliation Alternatives</td>
<td>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).</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;ali:free_to_read&gt;</code> Free to Read (NISO Access License and Indicators)</td>
<td>A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.</td>
</tr>
<tr>
<td>✓ ✔ ✔</td>
<td></td>
<td></td>
<td><code>&lt;ali:license_ref&gt;</code> License Reference (NISO Access License and Indicators)</td>
<td>A reference to a URI that carries the license terms specifying how a work may be used.</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### <tag> Element name

**Element definition**

- **<alt-text> Alternate Text Name (for a figure, etc.)**
  
  Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a 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.

- **<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 external 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.
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;tag&gt;</td>
<td>Element name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Element definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;attrib&gt;</td>
<td>Attribution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Container element for information concerning the origin of an extract, display quote, poetry, or similar element.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;author-comment&gt;</td>
<td>Author Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Textual material associated with a contributor.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;author-notes&gt;</td>
<td>Author Note Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Container element for notes about the article’s contributors.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;award-group&gt;</td>
<td>Award Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Container element for information concerning one award under which the work (or the research on which the work was based) was supported.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;award-id&gt;</td>
<td>Award Identifier</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unique identifier assigned to an award, contract, or grant.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;back&gt;</td>
<td>Back Matter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material published with an article but following the narrative flow.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;bio&gt;</td>
<td>Biography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biographical data concerning a contributor or the description of a collaboration.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;body&gt;</td>
<td>Body of the Document</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main textual portion of the document that conveys the narrative content.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;bold&gt;</td>
<td>Bold</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used to mark text that should appear in bold face.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;boxed-text&gt;</td>
<td>Boxed Text</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;break&gt;</td>
<td>Line Break</td>
<td></td>
</tr>
<tr>
<td></td>
<td>An explicit line break in the text.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;caption&gt;</td>
<td>Caption of a Figure, Table, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Container element for the textual description that is associated with an object (for example, with a &lt;fig&gt; or &lt;table-wrap&gt;).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;chapter-title&gt;</td>
<td>Chapter Title in a Citation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Title of a cited book chapter.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>&lt;chem-struct&gt;</td>
<td>Chemical Structure (Display)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemical expression, reaction, equation, etc. that is set apart within the text.</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;tag&gt; Element name</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Element definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;chem-struct-wrap&gt; Chemical Structure Wrapper</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;citation-alternatives&gt; Citation Alternatives</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Holds alternative versions of a single citation, for example, the same citation in multiple languages or a single citation tagged as both a &lt;mixed-citation&gt; complete with punctuation and spacing preserved and as an &lt;element-citation&gt; with punctuation and spacing removed.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;city&gt; City</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>The name of a city.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;code&gt; Code</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>A container element for technical content such as programming language code, pseudo-code, schemas, or a markup fragment.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;col&gt; Table Column (NISO JATS table model)</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>The description of one column of a table, used to provide attributes relating to a specific column. If there is no &lt;col&gt; these attributes will be inherited from the associated &lt;colgroup&gt;. (This element is based on and intended to be converted easily to the XHMTL col element.)</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;colgroup&gt; Table Column Group (NISO JATS table model)</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>A container element to hold column descriptions (element &lt;col&gt;) for a group of columns in a table —or for all of the columns in the table if there is only one &lt;colgroup&gt; in the table. Attributes on the &lt;colgroup&gt; apply to all of the columns in the group unless over-ridden on the &lt;col&gt;. (This element is based on and intended to be converted easily to the XHMTL colgroup element.)</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;collab&gt; Collaborative (Group) Author</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Group of contributors credited under a single name; includes an organization credited as a contributor.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;collab-alternatives&gt; Collaboration Alternatives</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;comment&gt; Comment in a Citation</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Container element for unstructured text within a bibliographic reference.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;compound-kwd&gt; Compound Keyword</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Wrapper element for multi-part keywords (for example, a code and its meaning).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;compound-kwd-part&gt; Compound Keyword Part</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Individual component of a multi-part keyword (for example, a code, the code’s meaning).</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
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<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
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<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;compound-subject&gt; Compound Subject Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrapper element to hold all the parts of a multi-part subject (for example, a subject term and the code representing that term).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;compound-subject-part&gt; Compound Subject Part Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual component of a multi-part subject (for example, subject term, code for the term).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-acronym&gt; Conference Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-date&gt; Conference Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date(s) on which a conference was held.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-loc&gt; Conference Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical location(s) of a conference (for example, city, country, campus, organization location).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-name&gt; Conference Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full name of a conference, including any qualifiers such as “43rd Annual”.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-num&gt; Conference Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequential number of a conference.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-sponsor&gt; Conference Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>One organization identified as a sponsor of a conference.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conf-theme&gt; Conference Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme, slogan, or major subject area of a conference.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;conference&gt; Conference Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container element to contain information about a single conference and its proceedings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;contrib&gt; Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container element for information about a single author, editor, or other contributor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;contrib-group&gt; Contributor Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container element for one or more contributors and information about those contributors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;contrib-id&gt; Contributor Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 (Japan Science and Technology Agency) identifier, or an NII (National Individual Identifier).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;copyright-holder&gt; Copyright Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the organizational or personal entity that holds a copyright.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;copyright-statement&gt; Copyright Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copyright notice or statement, suitable for printing or display.</td>
</tr>
<tr>
<td>Archiving</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
</tr>
</tbody>
</table>

**<tag> Element name**

Element definition

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Correspondence Information**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Copyright Year**

The year of copyright.

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Country: in an Address**

Country name used within an address.

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Counts**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Custom Metadata**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Custom Metadata Group**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Data Title**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Date**

Container element for the parts of a single calendar date.

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Date within a Citation**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Day**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Definition List: Definition**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Definition List: Definition Head**

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

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Definition List: Definition Item**

One item in a definition (two-part) list.
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>&lt;tag&gt; Element name</td>
<td>Element definition</td>
<td></td>
</tr>
</tbody>
</table>

| ✓ | ✓ | ✓ |
| <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. |

| ✓ | ✓ | ✓ |
| <element-citation> Element Citation |
| Bibliographic description of a work. Includes bibliographic reference elements only. Does not include untagged text, spacing, or punctuation. |

| ✓ | ✓ | ✓ |
| <elocation-id> Electronic Location Identifier |
| Bibliographic identifier for a document that does not have traditional printed page numbers. |

| ✓ | ✓ | ✓ |
| <email> Email Address |
| Electronic mail address of a person or institution. |

| ✓ | ✓ | ✓ |
| <equation-count> Equation Count |
| Number of <disp-formula> elements that appear in the document. |

| ✓ | ✓ | ✓ |
| <era> Era of Time |
| A specified range of years that is named for an event, political ruler, or characterization of the timespan. |

| ✓ | ✓ | ✓ |
| <etal> Et Al. |
| Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis. |

<p>| ✓ | ✓ | ✓ |
| &lt;ext-link&gt; External Link |
| Link to an external file or resource. |</p>
<table>
<thead>
<tr>
<th>Tag</th>
<th>Element name</th>
<th>Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>Fax Number: in an Address</td>
<td>Portion of an address that contains a fax number.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Figure</td>
<td>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”.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Figure Count</td>
<td>Number of <code>&lt;fig&gt;</code> elements that appear in the document.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Figure Group</td>
<td>Container element for figures that are to be displayed together.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Fixed Case</td>
<td>Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Floating Element Group</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Footnote</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Footnote Group</td>
<td>Container element for footnotes that appear at the end of the document.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>First Page</td>
<td>Page number on which a document starts.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Front Matter</td>
<td>Container element for the metadata of an article and the journal in which it was published.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Stub Front Metadata</td>
<td>Reduced set of metadata for use in <code>&lt;sub-article&gt;</code> and <code>&lt;response&gt;</code>, both of which are contained within an article. Any metadata not explicitly tagged in the front-stub is inherited from <code>&lt;article-meta&gt;</code> in the enclosing article.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Funding Group</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Funding Source</td>
<td>Agency or organization that funded the research on which a work was based.</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
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</tr>
<tr>
<td>✓ ✓ ✓ &lt;funding-statement&gt; Funding Statement</td>
<td>Displayable prose statement that describes the funding for the research on which a work was based.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;given-names&gt; Given (First) Names</td>
<td>All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;glossary&gt; Glossary Elements List</td>
<td>Section whose content is typically a list of terms and definitions, usually tagged as one or more two-part lists called &lt;def-list&gt;. Typically part of the back matter of a document.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;glyph-data&gt; Glyph Data for a Private Character</td>
<td>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 &lt;glyph-data&gt; 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.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;glyph-ref&gt; Glyph Reference for a Private Character</td>
<td>Once a private character has been declared using a &lt;glyph-data&gt; element, the character need not be defined with the same &lt;glyph-data&gt; element every time it is used. The character can be reused by using the &lt;glyph-ref&gt; element to point to the full &lt;glyph-data&gt; element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the &lt;glyph-ref&gt; element to point to the @id attribute of an existing &lt;glyph-data&gt; element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;gov&gt; Government Report, Cited</td>
<td>Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;graphic&gt; Graphic</td>
<td>Description of and pointer to an external file containing a still image.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ &lt;history&gt; History: Document History</td>
<td>Container element for dates related to the processing history of the document (for example, received date, accepted date).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;hr&gt; Horizontal Rule</td>
<td>An explicit horizontal rule.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;inline-formula&gt; Formula, Inline</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓ &lt;inline-graphic&gt; Graphic, Inline</td>
<td>Description of and pointer to an external graphic that is displayed or set in the same line as the text.</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
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</tr>
</tbody>
</table>

**<inline-supplementary-material> Inline Supplementary Material Metadata**

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

**<institution> Institution Name: in an Address**

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

**<institution-id> Institution Identifier**

A externally defined institutional identifier, whether publisher-specific (for example “AIP”) or from an established identifying authority (for example, “Ringgold” or “ISNI”).

**<institution-wrap> Institution Wrapper**

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

**<isbn> ISBN**

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

**<issn> ISSN**

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

**<issn-l> ISSN-L (Linking ISSN)**

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

**<issue> Issue Number**

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

**<issue-id> Issue Identifier**

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

**<issue-part> Issue Part**

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

**<issue-sponsor> Issue Sponsor**

Sponsor for an issue of the journal.

**<issue-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.
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
<th>&lt;tag&gt; Element name</th>
<th>Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;journal-id&gt; Journal Identifier</td>
<td>Short code or abbreviation used as an identifier for a journal.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>&lt;journal-meta&gt; Journal Metadata</td>
<td>Container element for metadata about the journal in which the article was published.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>&lt;journal-subtitle&gt; Journal Subtitle (Full)</td>
<td>Full subtitle of the journal in which the article was published.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>&lt;journal-title&gt; Journal Title (Full)</td>
<td>Full title of the journal in which the article was published.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>&lt;journal-title-group&gt; Journal Title Group</td>
<td>Container element for the titles of the journal in which the article was published.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;kwd&gt; Keyword</td>
<td>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 (&lt;kwd&gt;) 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.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;kwd-group&gt; Keyword Group</td>
<td>Container element for one set of keywords (such as &lt;kwd&gt;s, &lt;nested-kwd&gt;s, or &lt;compound-kwd&gt;s) used to describe a document.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;label&gt; Label (of an Equation, Figure, Reference, etc.)</td>
<td>Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;license&gt; License Information</td>
<td>Set of conditions under which the content may be used, accessed, and distributed.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;license-p&gt; License Paragraph</td>
<td>Paragraph of text within the description of a &lt;license&gt;.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;list&gt; List</td>
<td>Sequence of two or more items, which may or may not be ordered.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;list-item&gt; List Item</td>
<td>Single item (one entry) in a list of items.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>&lt;long-desc&gt; Long Description</td>
<td>Full description or summary of the content of an object such as a graphic, table, figure, or text box.</td>
</tr>
</tbody>
</table>
## Archiving, Publishing, Authoring

<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
</table>

### <tag> Element name
Element definition

### ✓ ✓ ✓ <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 Tag Set)
Use documentation for the Mathematical Markup Language (MathML) Tag Set (http://www.w3.org/TR/MathML3/ or 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>.

### ✓ ✓ ✓ <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.
<table>
<thead>
<tr>
<th>Archiving Publishing Authoring</th>
<th>&lt;tag&gt; Element name</th>
<th>Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;nlm-citation&gt; NLM Citation</td>
<td>This element is deprecated; avoid using it. Use &lt;element-citation&gt;.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>&lt;note&gt; Note in a Reference List</td>
<td>Non-citation content inside a bibliographic reference list.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>&lt;notes&gt; Notes</td>
<td>Section-like container element for one or more notes that are not part of the narrative flow (for example, note added in proof, dedication).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;object-id&gt; Object Identifier</td>
<td>Unique identifier (such as a DOI or URI) for a component within an article (for example, for a figure or a table).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;on-behalf-of&gt; On Behalf of</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;open-access&gt; Open Access</td>
<td>Open access provisions that apply to a work or the funding information that provided the open access provisions.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;overline&gt; Overline</td>
<td>Used to mark text that should appear with a horizontal line above each character.</td>
</tr>
<tr>
<td>✓</td>
<td>&lt;overline-end&gt; Overline End</td>
<td>Milestone indicating the end of overline emphasis.</td>
</tr>
<tr>
<td>✓</td>
<td>&lt;overline-start&gt; Overline Start</td>
<td>Milestone indicating the beginning of overline emphasis.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;p&gt; Paragraph</td>
<td>Textual unit or block; a textual paragraph.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;page-count&gt; Page Count</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;page-range&gt; Page Ranges</td>
<td>Text describing discontinuous pagination (for example, 8-11, 14-19, 40).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;part-title&gt; Part Title in a Citation</td>
<td>Title of part of a book (for example, chapter, module) described in a bibliographic reference.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>&lt;patent&gt; Patent Number, Cited</td>
<td>Identification information for a patent in a bibliographic reference or product.</td>
</tr>
<tr>
<td>Archiving/</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
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<tr>
<td>✓ ✓ ✓</td>
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<tr>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publisher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Container element for information about the person, company, or other entity that published a work.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Publisher-loc</td>
<td>Publisher’s Location</td>
</tr>
<tr>
<td></td>
<td>Place of publication, usually a city, such as New York or London.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Publisher-name</td>
<td>Publisher’s Name</td>
</tr>
<tr>
<td></td>
<td>Name of the person, company, or other entity that published a work.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Ruby Base Text</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This element is one half of a Ruby annotation (&lt;ruby&gt;), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (&lt;rt&gt;) should be applied.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Reference Item</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One item in a bibliographic list.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Reference Count</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of references or citations that appear in a bibliographic reference list.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Reference List (Bibliographic)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>List of bibliographic references for a document or document component.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Related Article Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description of a journal article related to the content but published separately. May include a link to the related article.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Related Object Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Response</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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 &lt;front-stub&gt; element; if the &lt;front-stub&gt; element is used, any metadata not specifically tagged is inherited from the original article.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Role or Function Title of Contributor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Title or role of a contributor to a work (for example, editor-in-chief, chief scientist, photographer, research associate).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used to mark text that should remain in roman script no matter what style the surrounding text takes on.</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<td>✓</td>
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<td>✓</td>
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<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
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<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### <tag> Element name

Element definition

### <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 graphic signature or description of the person(s) responsible for or attesting to the content.

### <size> Size

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

### <source> Source

Title of 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.

### <state> State or Province

The name of a state, province, territory or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, or parish. The names for such a unit vary geopolitically.

### <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

### <std> Standard, Cited

Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

### <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

### <strike> Strike Through

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

### <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.
<table>
<thead>
<tr>
<th>Archiving Publishing Authoring</th>
<th>&lt;tag&gt; Element name Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>Name of Person (Unstructured) Container element for personal names captured with mixed-content where the order of the name components is not enforced.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>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 &lt;named-content&gt; is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Subscript Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>Sub-article An article that is completely contained inside another article.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Document Subtitle Subordinate part of a title for a document or document component.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Suffix Qualifiers that follow a person’s name (for example, St., Jr., III, 3rd).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Superscript Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>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).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Supplementary Material Metadata Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>Surname Surname of a person.</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**<tag> Element name**

**Element definition**

- **<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.

- **<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.
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
</tr>
</tbody>
</table>

<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 graphic 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.)

✓ ✓ ✓

<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.
<table>
<thead>
<tr>
<th>Element name</th>
<th>Element definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Translated Title</td>
<td>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.</td>
</tr>
<tr>
<td>Translated Title Group</td>
<td>Container element for translated and transliterated titles.</td>
</tr>
<tr>
<td>Underline</td>
<td>Used to mark text that should appear with a horizontal line beneath it.</td>
</tr>
<tr>
<td>Underline End</td>
<td>Milestone indicating the end of underlined text.</td>
</tr>
<tr>
<td>Underline Start</td>
<td>Milestone indicating the start of underlined text.</td>
</tr>
<tr>
<td>Unstructured Keyword Group</td>
<td>Container element for one set of keywords used to describe a document, where the individual keywords are not tagged as separate &lt;kwd&gt;s but instead are all run together in one long text field.</td>
</tr>
<tr>
<td>Uniform Resource Identifier (URI)</td>
<td>Identifies a Uniform Resource Identifier (such as a URL) that may be used as a live link, typically naming a website, such as: &lt;uri&gt;<a href="http://www.mulberrytech.com">http://www.mulberrytech.com</a>&lt;/uri&gt;).</td>
</tr>
<tr>
<td>Verse Form for Poetry</td>
<td>Song, poem, or verse.</td>
</tr>
<tr>
<td>Line of a Verse</td>
<td>One line of a poem or verse.</td>
</tr>
<tr>
<td>Version Statement</td>
<td>A full version statement, which may be only a number, for data or software that is cited or described</td>
</tr>
<tr>
<td>Volume Number</td>
<td>Number of a journal (or other document) within a series.</td>
</tr>
<tr>
<td>Volume Identifier</td>
<td>Name or identifier (for example, DOI) that describes an entire volume.</td>
</tr>
<tr>
<td>Volume Issue Grouping</td>
<td>A grouping element to hold related volume and issue elements</td>
</tr>
<tr>
<td>Volume Series</td>
<td>Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.</td>
</tr>
</tbody>
</table>
### Archiving Publishing Authoring

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>&lt;tag&gt; Element name</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td><strong>Element definition</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>&lt;word-count&gt; Word Count</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>The approximate number of words that appear in a document or document component.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>&lt;x&gt; X - Generated Text and Punctuation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Generated text or punctuation. Typically used when:</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>• an archive decides not to have text generated on display and thus to pre-generate such things as commas or semicolons between keywords, or</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>• an archive receives text with &lt;x&gt; tags embedded and wishes to retain them.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>&lt;xref&gt; X (cross) Reference</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Reference to an object within the document (for example, a table, a bibliographic citation).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>&lt;year&gt; Year</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Representation, usually numerical, of a calendar year.</td>
</tr>
</tbody>
</table>

### 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`.

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>@attr Attribute name</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Attribute definition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>@abbr Abbreviation (NISO JATS table model)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>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.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>@abbrev-type Type of Journal Title Abbreviation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Identifier of the authority that defined the abbreviation (for example, “nlm-ta” for an NLM title abbreviation, “publisher” for a publisher-specific abbreviation).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>@abstract-type Type of Abstract</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Type or style of abstract as identified by the publisher (for example, “short”, “graphic”, “ASCII”, “stereochemical”).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th><strong>@align Horizontal Alignment (NISO JATS table model)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>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.)</td>
</tr>
<tr>
<td>Attribute</td>
<td>Definition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>@attr Attribute name</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attribute definition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @alt Alternative Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Word or phrase that serves as a textual alternative for the element.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @alt-title-type Type of Alternate Title</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reason for or purpose of an alternate title (for example, “toc” for a</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>title used in a Table of Contents, “rt-running” for a</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>right-running-head title for print).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @arrange Arrangement of Subscripts and Superscripts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicates whether multiple subscripts or superscripts applying to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>same character should stack (be placed one above the other as compactly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>as possible) or stagger (be stretched out in a line).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @article-type Type of Article</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type or kind of article (for example, “research”, “commentary”, “review”,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“case”, or “calendar”).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @assigning-authority Authority Responsible for an Identifier</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Names the authority (such as CrossRef, GenBank, or PDB) that assigned</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the identifier or is responsible for the identifier.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @authenticated Authenticated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The authority associated with this ID type (named in @contrib-id-type)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>has authenticated the value of this ID.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @award-type Type of Award</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type or kind of award (for example, “grant” or “contract”).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @axis Axis (NISO JATS table model)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A method of categorizing table cells. The value of this attribute should</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>be one or more category names. (This attribute is based on and intended</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to be converted easily to the XHMTL axis attribute.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @baseline-shift Baseline Shift</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The position of an inline graphic with respect to the current text</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>baseline (above, on, or below the baseline).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @border Border (Frame) around a Table (NISO JATS table model)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thickness, in pixels, of the border to draw around the table. A value</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of “0” indicates that the table has no border. (This attribute is based</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>on and intended to be converted easily to the XHMTL border attribute.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ ✓ ✓ @calendar Calendar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name of the calendar used in naming a date such as a publication date,</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|           | for example, “Gregorian”, “Japanese” (Emperor years), or “Thai Buddha”.
<p>|           | ✓ ✓ ✓ @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.)             |</p>
<table>
<thead>
<tr>
<th>Archiving Publishing Authoring</th>
<th>@attr Attribute name</th>
<th>Attribute definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Cell Spacing (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Width of space between cells in a table. (This attribute is based on and intended to be converted easily to the XHMTL cellspacing attribute.)</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Table Cell Alignment Character (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.)</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Table Character Offset (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.)</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Type of Code</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The type of this code, used to categorize or describe the code.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Code Version</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Version of this program or code fragment</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Type of Collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type or role of the collaborators; what function they played in the publication (for example, &quot;translators&quot;, &quot;editors&quot;).</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Column Span (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.)</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Type of Content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subject or type of content that makes this element semantically distinct.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Continued From</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ID of a list which the current list continues; used to connect discontiguous lists that form one logical list.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Contributor Identifier Type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Names the type of contributor identifier or the authority that is responsible for the creation of the contributor identifier.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Type of Contribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of contribution made by the individual (for example, &quot;author&quot;, &quot;editor&quot;, &quot;illustrator&quot;, &quot;translator&quot;, &quot;research-assistant&quot;).</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓ Corresponding Author</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indicates whether or not the contributor is the corresponding contributor for the content.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>@attr</td>
<td>Attribute name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attribute definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@count Count</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of specific objects that appear in the document.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓</td>
<td>@count-type Count Type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Names what is being counted by the &lt;count&gt; element, for example, images, contributors, algorithms, etc.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@country Country</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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 &lt;country&gt; element.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@currency Currency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of currency in which the price is presented.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@date-type Type of Date</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@deceased Deceased</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicates whether or not the contributor described in the element was deceased when the document or document component was published.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@description Description of a Private Character</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human-readable description of a defined private character (for example, “Arrow, normal weight, single line, two-headed, Northwest to Southeast”).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@designator Designator of the Edition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The edition number as an unadorned numeric or alphabetic value.</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>@disp-level Display Level of a Heading</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicates the level at which to display a section when the display level and hierarchical level are different.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@document-id Document Identifier</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identifier of a document within a publication that is (or contains) the target of the &lt;related-object&gt; element.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@document-id-type Document Identifier Type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of document identifier (for example, a DOI or a publisher’s identifier) named in the @document-id attribute of the &lt;related-object&gt; element to identify a document.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@document-type Document Type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of document being described by the &lt;related-object&gt; element.</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@attr Attribute name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attribute definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@dtd-version Version of the Tag Set (DTD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Version of the Tag Set that should be used to validate this article.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@elocation-id Elocation Identifier</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bibliographic identifier for a document that does not have traditional printed page numbers.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@end_date End Date</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, Access License and Indicators.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@equal-contrib Equal Contribution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicates whether or not all contributors contributed equally.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@executable Executable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@ext-link-type Type of External Link</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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”).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@fig-type Type of Figure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type or format of the figure (for example, “cartoon”, “chart”, “diagram”, “map”, “plate”, “workflow”).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@fn-type Type of Footnote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of information conveyed in the footnote (for example, contributor’s current affiliation, financial disclosure statement, reprint information).</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@fontchar Font Character Table Offset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Offset of the character into a glyph table, such as a Unicode character.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@fontname Font Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name of the font.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@format Format</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name of the image format for the bitmap that is provided with a &lt;glyph-data&gt; element. This element is used to define a private use character when the &lt;private-char&gt; contains a bitmap.</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@frame Frame (NISO JATS table model)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specifies which sides of the table should be given rules, making a box or frame of lines around the table. (This attribute is based on and intended to be converted easily to the XHTML frame attribute.)</td>
<td></td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>@glyph-data <strong>Glyph Data Character Being Referenced</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An IDREF-type attribute that points to the @id attribute of the <code>&lt;glyph-data&gt;</code> character inside a <code>&lt;private-char&gt;</code> element. The idea is to use the full <code>&lt;glyph-data&gt;</code> with its name and bitmap once, then point to an existing character instead of defining the entire <code>&lt;glyph-data&gt;</code> element repeatedly.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| ✓         | ✓          | ✓         |
| @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.) |

| ✓         | ✓          | ✓         |
| @id **Document Internal Identifier** |
| Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type. |

| ✓         | ✓          | ✓         |
| @initials **Initials for Personal Names** |
| Initial(s) for the surname or the given names of a person. |

| ✓         | ✓          | ✓         |
| @institution-id-type **Type of Institution Identifier** |
| Type or source of the institution identifier, such as ISNI or Ringgold. |

| ✓         | ✓          | ✓         |
| @iso-8601-date **ISO-8601 Formatted Date** |
| A machine-processable, ISO 8601 formatted date value (“YYYY-MM-DDThh:mm:ss”) for a JATS date-specific element, whether the date be specified as text, an ISO date, a partial date, or as any other date format. If the date given in the content of the element is in a non-Gregorian calendar, this attribute will hold the Gregorian calendar equivalent of that date. |

| ✓         | ✓          | ✓         |
| @issue **Issue Number of a Related Article** |
| Issue number of a journal which contains the related article. |

| ✓         | ✓          | ✓         |
| @journal-id **Journal Identifier of a Related Article** |
| Identifier for the journal that contains the related article. |

| ✓         | ✓          | ✓         |
| @journal-id-type **Type of Journal Identifier** |
| Type of journal identifier or the authority that created a particular journal identifier. |

<p>| ✓         | ✓          | ✓         |
| @kwd-group-type <strong>Keyword Authority</strong> |
| 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). |</p>
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>@attr Attribute name</td>
<td>Attribute definition</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@language Code Language</td>
<td>Programming or scripting language in which this code is written, e.g. &quot;javascript&quot;, for code written in &quot;Javascript 3.0&quot;. (The &quot;3.0&quot; is recorded in the @language-version attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@language-version Code Language Version</td>
<td>Version of the language in which this code is written, e.g. &quot;3.0&quot;, for code written in &quot;Javascript 3.0&quot;. (The language name “javascript” is recorded in the @language attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@license-type Type of License</td>
<td>Type of license described by the element.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@link-type Type of Link (for a Related Object)</td>
<td>How a &lt;related-object&gt; element is related to the current document (for example, to indicate a Table of Contents relationship).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@list-content List Content</td>
<td>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).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@list-type Type of List</td>
<td>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.”).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@mime-subtype Mime Subtype</td>
<td>Mime subtype for a graphic, multimedia object, or piece of supplementary material.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@mimetype Mime Type</td>
<td>Mime type for a graphic, multimedia object, or piece of supplementary material.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@name Name (Private Character)</td>
<td>This attribute is used for use with &lt;private-char&gt;, to contain the unique name for the private character being defined.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@name-style Name Style</td>
<td>Style of processing requested for a structured personal name.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>@notation Notation</td>
<td>Indicates that the content of the associated element will be coded in one of the named notations.</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>@notes-type Type of Notes</td>
<td>Type of note contained in the element (for example, “note-in-proof”).</td>
</tr>
<tr>
<td>✓ ✓</td>
<td>@object-id Object Identifier</td>
<td>Identifier of an object (for example, a table, figure, or sidebar) within a separate document that is the target of the &lt;related-object&gt; element.</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Attribute Definition</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------</td>
<td></td>
</tr>
</tbody>
</table>
| @object-id-type | Object Identifier Type  
Type of object identifier (for example, an XML ID, a string, the label of the object, a DOI) for a `<related-object>` element. |
| @object-type | Object Type  
Type of object (for example, “table”, “figure”, “sidebar”) that is the target of the `<related-object>` element. |
| @orientation | Orientation  
Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical (“portrait”) or in a wide manner with the long edge horizontal (“landscape”). |
| @page | Page of Related Article  
Page number of a related journal article, which may be either the number of the journal page on which the article starts or a page range. |
| @person-group-type | Type of People in the Person Group  
Role of the persons being named in `<person-group>` element (for example, authors, editors, members of the G&S chorus). |
| @platforms | Platforms  
Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word “name”, and multiple platform names will be separated by spaces. |
| @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, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.). |
| @product-type | Type of Product  
Category of product described in the element (for example, “book”, “software”, “article” “issue”, “website”, “film”, “hardware”). |
| @pub-id-type | Type of Publication Identifier  
Type of publication identifier or the organization or system that defined the identifier. |
| Archiving Publishing Authoring | @attr Attribute name  
|-------------------------------|-----------------------
<p>|                               | Attribute definition  |
| ✓ ✓ ✓ @publication-format Format of Publication |
|                               | Format or medium of the document (for example, “print”). This element is used in several senses: |
|                               | • to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date, |
|                               | • to describe the format/medium for an ISSN or ISBN, and |
|                               | • to name the format/medium of the document being cited as part of a bibliographic reference. |
| ✓ ✓ ✓ @publication-type Type of Referenced Publication |
| ✓ ✓ ✓ @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”). |
| ✓ ✓ ✓ @pub-type Type of Publication |
|                               | Deprecated: On the element <code>&lt;pub-date&gt;</code>, in the Archiving and Publishing Tag Sets, this <code>@pub-type</code> attribute is deprecated in favor of the <code>@publication-format</code> and <code>@date-type</code> attributes. In all Tag Sets, on the element <code>&lt;issn&gt;</code>, this <code>@pub-type</code> attribute is deprecated in favor of the <code>@publication-format</code> attribute (possibly with the <code>@content-type</code> attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other. |
|                               | <strong>Definition:</strong> Deprecated pre-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 publication in print. |
| ✓ ✓ ✓ @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 (<code>&lt;response&gt;</code>) ; parallels <code>@article-type</code>. |</p>
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>@attr</td>
<td>Attribute name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attribute definition</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@rid</td>
<td>Reference to an Identifier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value of the identifier of an associated element; used for linking related elements (for example, <code>&lt;term&gt;</code> to a <code>&lt;def&gt;</code>, <code>&lt;bio&gt;</code> to a <code>&lt;contrib&gt;</code>).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@rowspan</td>
<td>Row Span (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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 <code>rowspan</code> attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@rules</td>
<td>Rules (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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 <code>rules</code> attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@scope</td>
<td>Scope (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specifies the cells for which the <code>&lt;td&gt;</code> element provides header information. This provides an alternative to using explicitly named header elements (<code>&lt;th&gt;</code>) if the arrangement of header cells is not complex. (This attribute is based on and intended to be converted easily to the XHMTL <code>scope</code> attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@sec-type</td>
<td>Type of Section</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of semantic content included in the section (for example, “materials”, “conclusions”).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@seq</td>
<td>Sequence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sequence number of a document within the type of sequence named by the element to which this attribute is attached: on a <code>&lt;volume&gt;</code> element, the sequence within the volume; on an <code>&lt;issue&gt;</code> element, the sequence within the issue; on an <code>&lt;fpage&gt;</code> element, the sequence within a single page; and on an <code>&lt;elocation-id&gt;</code> element, the electronic sequence.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@source-id</td>
<td>Source Identifier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifier of a journal, book, conference proceedings, or other publication that is (or contains) the target of the <code>&lt;related-object&gt;</code>.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@source-id-type</td>
<td>Source Identifier Type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher’s identifier) for a <code>&lt;related-object&gt;</code>.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@source-type</td>
<td>Source Type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This attribute can be used with two elements:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 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 <code>&lt;funding-source&gt;</code>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• to identify the type of publication, for example, a “book”, “journal”, or “database” that is (or contains) the target of the <code>&lt;related-object&gt;</code>.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@span</td>
<td>Span (NISO JATS table model)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The number of columns that will share the <code>&lt;col&gt;</code> or <code>&lt;colgroup&gt;</code> element’s attributes. (This attribute is based on and intended to be converted easily to the XHMTL <code>span</code> attribute.)</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

| ✓         | ✓          | ✓         | @specific-use Specific Use |
|           |            |           | Specifies distinctions in the applicability of a particular element. |

| ✓         | ✓          | ✓         | @start_date Start Date |
|           |            |           | Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, Access License and Indicators. |

| ✓         | ✓          | ✓         | @style Style (NISO JATS table model; MathML Tag Set) |
|           |            |           | Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts: |
|           |            |           | • with the styled content element (<styled-content>), 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 |

| ✓         | ✓          | ✓         | @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.) |

| ✓         | ✓          | ✓         | @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). |

| ✓         | ✓          | ✓         | @toggle Toggle Switch |
|           |            |           | Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context. |

<p>| ✓         | ✓          | ✓         | @underline-style Appearance of the Underline |
|           |            |           | Style of underline to be used (for example, “single”, “double”, “dashed”). |</p>
<table>
<thead>
<tr>
<th>Archiving</th>
<th>Publishing</th>
<th>Authoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>@attr Attribute name</td>
<td>Attribute definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@units Units</td>
<td>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”).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@valign Vertical Alignment (NISO JATS table model)</td>
<td>Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHMTL valign attribute.)</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@version Version of TeX or LaTeX</td>
<td>Version of TeX or LaTeX used to produce the mathematics.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@vol Volume of Related Article</td>
<td>Volume of the journal in which a related journal article exists.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@width Width (NISO JATS table model)</td>
<td>This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:actuate Actuating the Link</td>
<td>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).</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:href Href (Linking Mechanism)</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:role Role of the Link</td>
<td>A URI reference pointing to some resource that describes the role or function of a link.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:show Showing the Link</td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:title Title of the Link</td>
<td>Describes the function of a link’s remote resource in human-readable fashion.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xlink:type Type of Link</td>
<td>The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word “simple”, which means that the link is a simple, one-ended link.</td>
</tr>
<tr>
<td>Archiving</td>
<td>Publishing</td>
<td>Authoring</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Attribute name</td>
<td>Attribute definition</td>
<td></td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xml:base <strong>Base</strong></td>
<td>Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the &quot;base&quot; provided as the value of this attribute. For example, if a document has an @xml:base of &quot;<a href="http://jats.nlm.nih.gov/">http://jats.nlm.nih.gov/</a>&quot;, a URI inside the document of &quot;publishing/rationale.html&quot; would be processed as if it were &quot;<a href="http://jats.nlm.nih.gov/publishing/rationale.html">http://jats.nlm.nih.gov/publishing/rationale.html</a>&quot;. Values of @xml:base are inherited; meaning that if there is an @xml:base on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xml:lang <strong>Language</strong></td>
<td>The language of the intellectual content of the element for which this is an attribute. The value of this attribute must conform to IETF RFC 5646 (<a href="http://tools.ietf.org/html/rfc5646">http://tools.ietf.org/html/rfc5646</a>). For most uses, a primary-language subtag such as &quot;fr&quot; (French), &quot;en&quot; (English), &quot;de&quot; (German), or &quot;zh&quot; (Chinese) is sufficient. These values are NOT case sensitive, but current best practice uses all lower case. In addition to the primary language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: <a href="http://www.iana.org/assignments/language-subtag-registry">http://www.iana.org/assignments/language-subtag-registry</a>.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xmlns:ali <strong>NISO ALI Namespace (NISO Access License and Indicators)</strong></td>
<td>This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO Access License and Indicators) elements. All namespace prefixes must be associated with a URL, and the prefix “ali” has been set to the URL <a href="http://www.niso.org/schemas/ali/1.0/">http://www.niso.org/schemas/ali/1.0/</a> as per the NISO ALI best practices recommendation.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xmlns:mml <strong>MathML Namespace Declaration</strong></td>
<td>This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix “mml” has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same URL is the same for both MathML 2.0 and MathML 3.0.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xmlns:xlink <strong>XLink Namespace Declaration</strong></td>
<td>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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xmlns:xsi <strong>XML Schema Namespace Declaration</strong></td>
<td>This is not an attribute, but a namespace pseudo-attribute. The value provides a prefix to use for the @xsi_schemaLocation attribute an included vocabulary requires. 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.</td>
</tr>
<tr>
<td>✓ ✓ ✓</td>
<td>@xml:space <strong>Space</strong></td>
<td>When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.</td>
</tr>
</tbody>
</table>
8 Journal Archiving and Interchange Tag Set, version 1.1

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 (<article-meta>), 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.

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 (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.

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

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

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
8.4.3 <abstract> Abstract
Summarized description of the content of a document or document component.

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

Content model:
The following, in order:
- <object-id> Object Identifier, zero or more
- The following, in order:
  - <sec-meta> Section Metadata, zero or one
  - <label> Label (of an Equation, Figure, Reference, etc.), zero or one
  - <title> Title, zero or one
  - Any combination of:
    - Paragraph-level Display Elements
      - <address> Address/Contact Information
      - <array> Array (Simple Tabulation)
      - <boxed-text> Boxed Text
      - <chem-struct-wrap> Chemical Structure Wrapper
      - <code> Code
      - <fig> Figure
      - <fig-group> Figure Group
      - <graphic> Graphic
      - <media> Media Object
      - <preformat> Preformatted Text
      - <supplementary-material> Supplementary Material Metadata
      - <table-wrap> Table Wrapper
      - <table-wrap-group> Table Wrapper Group
    - <alternatives> Alternatives For Processing
8.4.4 <access-date> Access Date for Cited Work

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

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

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

8.4.5 <ack> Acknowledgments

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

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

Content model:
  The following, in order:
8.4.6 <addr-line> Address Line

One physical or logical line of an address.

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

Content model:
Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    ◦ <email> Email Address
    ◦ <ext-link> External Link
    ◦ <uri> Uniform Resource Identifier (URI)
8.4.7 <address> Address/Contact Information

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

Attributes:

- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
### 8.4.8 `<aff>` Affiliation

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

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

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

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
- <aff> Affiliation, one or more

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

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

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

Content model:
This is an EMPTY element
8.4.11 <ali:license_ref> License Reference (NISO Access License and Indicators)
A reference to a URI that carries the license terms specifying how a work may be used.

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

Content model:
- Text, numbers, or special characters

8.4.12 <alt-text> Alternate Text Name (for a figure, etc.)
Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a graphic or figure.

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

Content model:
- Text, numbers, or special characters

8.4.13 <alt-title> Alternate Title
An alternative or different version of the title of a work.

Attributes:
- @alt-title-type Type of Alternate Title
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

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

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

Attributes:
- `@id` Document Internal Identifier
- `@xml:base` Base

Content model:
One or more of any of:
- `<array>` Array (Simple Tabulation)
- `<chem-struct>` Chemical Structure (Display)
- `<code>` Code
- `<graphic>` Graphic
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<private-char>` Private Character (Custom or Unicode)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- `<media>` Media Object
- `<preformat>` Preformatted Text
- `<supplementary-material>` Supplementary Material Metadata
- `<table>` Table (NISO JATS table model)
- `<textual-form>` Textual Form
- Math Elements
  - `<tex-math>` TeX Math Equation
  - `<mml:math>` Math (MathML Tag Set)
8.4.15 <annotation> Annotation in a Citation
Commentary, summary, review, or similar non-bibliographic information concerning the cited work.

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

Content model:
Any one of:
• <p> Paragraph, one or more

8.4.16 <anonymous> Anonymous
Placeholder for the name of a contributor where the actual name is unknown or not disclosed.

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

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

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

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

Content model:
The following, in order:
- The following, in order:
  - <sec-meta> Section Metadata, zero or one
  - <label> Label (of an Equation, Figure, Reference, etc.), zero or one
  - <title> Title, zero or one
  - Any combination of:
    - Paragraph-level Display Elements
      - <address> Address/Contact Information
      - <array> Array (Simple Tabulation)
      - <boxed-text> Boxed Text
      - <chem-struct-wrap> Chemical Structure Wrapper
      - <code> Code
      - <fig> Figure
      - <fig-group> Figure Group
      - <graphic> Graphic
      - <media> Media Object
      - <preformat> Preformatted Text
      - <supplementary-material> Supplementary Material Metadata
      - <table-wrap> Table Wrapper
      - <table-wrap-group> Table Wrapper Group
      - <alternatives> Alternatives For Processing
      - <disp-formula> Formula, Display
      - <disp-formula-group> Formula, Display Group
      - Lists
        - <def-list> Definition List
        - <list> List
      - Math Elements
        - <tex-math> TeX Math Equation
        - <mml:math> Math (MathML Tag Set)
      - <p> Paragraph
    - Related Material Elements
      - <related-article> Related Article Information
      - <related-object> Related Object Information
    - <ack> Acknowledgments
    - <disp-quote> Quote, Displayed
8.4.18 <app-group> Appendix Group

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

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

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• <abstract> Abstract, zero or more
• <kwrd-group> Keyword Group, zero or more
• 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
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
  ◦ Table Wrapper
  ◦ Table Wrapper Group
  ◦ <alternatives> Alternatives For Processing
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
  ◦ Lists
    • <def-list> Definition List
    • <list> List
  ◦ Math Elements
    • <tex-math> TeX Math Equation
    • <mml:math> Math (MathML Tag Set)
  ◦ <p> Paragraph
  ◦ Related Material Elements
    • <related-article> Related Article Information
    • <related-object> Related Object Information
  ◦ <ack> Acknowledgments
  ◦ <disp-quote> Quote, Displayed
  ◦ <speech> Speech
  ◦ <statement> Statement, Formal
Verse Form for Poetry

Any combination of:
- <app> Appendix
- <ref-list> Reference List (Bibliographic)

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

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

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

8.4.20 <article> Article
A journal article.

Attributes:
- @article-type Type of Article
- @dtd-version Version of the Tag Set (DTD)
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
- @xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)
- @xmlns:mml MathML Namespace Declaration
- @xmlns:xlink XLink Namespace Declaration
- @xmlns:xsi XML Schema Namespace Declaration

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

### 8.4.21 <article-categories> Article Grouping Data
Container element for elements that may be used to group articles into related clusters, for example, by subject matter or by series.

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

**Content model:**
The following, in order:
- <subj-group> Subject Group, zero or more
- <series-title> Series Title, zero or more
- <series-text> Series Text: Header Text to Describe, zero or more

### 8.4.22 <article-id> Article Identifier
Unique external identifier assigned to an article.

**Attributes:**
- @id Document Internal Identifier
- @pub-id-type Type of Publication Identifier
- @specific-use Specific Use
- @xml:base Base

**Content model:**
Text, numbers, or special characters

### 8.4.23 <article-meta> Article Metadata
Container element for information concerning the article that identifies or describes the article.

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

**Content model:**
The following, in order:
- <article-id> Article Identifier, zero or more
- <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 more
  * <volume-id> Volume Identifier, zero or more
  * <volume-series> Volume Series, zero or one
  * <issue> Issue Number, zero or more
  * <issue-id> Issue Identifier, zero or more
  * <issue-title> Issue Title, zero or more
  * <issue-sponsor> Issue Sponsor, zero or more
  * <issue-part> Issue Part, zero or one
  * <volume-issue-group> Volume Issue Grouping, zero or more
  * <isbn> ISBN, zero or more
• <supplement> Supplement Information, zero or one
• Optionally any one of:
  ◦ The following, in order:
    ▪ Optionally, the following sequence (in order):
      ◦ <fpage> First Page
      ◦ <lpage> Last Page, zero or one
      ◦ <page-range> Page Ranges, zero or one
     ▪ <elocation-id> Electronic Location Identifier
• Any combination of:
  ◦ Linking Elements
    ▪ <email> Email Address
    ▪ <ext-link> External Link
    ▪ <uri> Uniform Resource Identifier (URI)
  ◦ <product> Product Information
  ◦ <supplementary-material> Supplementary Material Metadata
• <history> History: Document History, zero or one
• <permissions> Permissions, zero or one
• <self-uri> URI for This Same Article Online, zero or more
• Any combination of:
  ◦ Related Material Elements
    ▪ <related-article> Related Article Information
    ▪ <related-object> Related Object Information
  ◦ <abstract> Abstract, zero or more
  ◦ <trans-abstract> Translated Abstract, zero or more
  ◦ <kwg-group> Keyword Group, zero or more
  ◦ <conference> Conference Information, zero or more
  ◦ <counta> Counts, zero or one
  ◦ <custom-meta-group> Custom Metadata Group, zero or one

8.4.24 <article-title> Article Title
Full title of an article.

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

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

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

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

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

Textual material associated with a contributor.

Attributes:

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

Content model:

The following, in order:

• <title> Title, zero or one
• <p> Paragraph, one or more

8.4.27 <author-notes> Author Note Group

Container element for notes about the article’s contributors.

Attributes:

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

Content model:

The following, in order:

• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• One or more of any of:
  • <corresp> Correspondence Information
  • <fn> Footnote
8.4.28 <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>` Document Internal Identifier
- `<rid>` Reference to an Identifier
- `<specific-use>` Specific Use
- `<xlink:actuate>` Actuating the Link
- `<xlink:href>` Href (Linking Mechanism)
- `<xlink:role>` Role of the Link
- `<xlink:show>` Showing the Link
- `<xlink:title>` Title of the Link
- `<xlink:type>` Type of Link
- `<xml:base>` Base
- `<xml:lang>` Language
- `<xmlns:xlink>` XLink Namespace Declaration

Content model:
The following, in order:
- `<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

8.4.29 <award-id> Award Identifier

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

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

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

Material published with an article but following the narrative flow.

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

Content model:
The following, in order:
  • <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
8.4.31 <bio> Biography

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

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

Content model:
The following, in order:
- <sec-meta> Section Metadata, zero or one
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - <address> Address/Contact Information
    - <array> Array (Simple Tabulation)
    - <boxed-text> Boxed Text
    - <chem-struct-wrap> Chemical Structure Wrapper
    - <code> Code
    - <fig> Figure
    - <fig-group> Figure Group
    - <graphic> Graphic
    - <media> Media Object
    - <preformat> Preformatted Text
    - <supplementary-material> Supplementary Material Metadata
    - <table-wrap> Table Wrapper
    - <table-wrap-group> Table Wrapper Group
  - <alternatives> Alternatives For Processing
    - <disp-formula> Formula, Display
    - <disp-formula-group> Formula, Display Group
  - Lists
    - <def-list> Definition List
    - <list> List
  - Math Elements
    - <tex-math> TeX Math Equation
    - <mml:math> Math (MathML Tag Set)
  - <p> Paragraph
  - Related Material Elements
    - <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
8.4.32 <body> Body of the Document
Main textual portion of the document that conveys the narrative content.

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

Content model:
The following, in order:
• Any combination of:
  • Paragraph-level Display Elements
    • <address> Address/Contact Information
    • <array> Array (Simple Tabulation)
    • <boxed-text> Boxed Text
    • <chem-struct-wrap> Chemical Structure Wrapper
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
    • <table-wrap> Table Wrapper
    • <table-wrap-group> Table Wrapper Group
  • <alternatives> Alternatives For Processing
    • <disp-formula> Formula, Display
    • <disp-formula-group> Formula, Display Group
  • Lists
    • <def-list> Definition List
    • <list> List
  • Math Elements
    • <tex-math> TeX Math Equation
    • <mml:math> Math (MathML Tag Set)
  • <p> Paragraph
  • Related Material Elements
    • <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

8.4.33 <bold> Bold
Used to mark text that should appear in bold face.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@xml:base Base
Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
- <x> X - Generated Text and Punctuation
- <break> Line Break

8.4.34 <boxed-text> Boxed Text
Textual material that is part of the body but is outside the flow of the narrative text (for example, a sidebar).

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @orientation Orientation
- @position Position
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
  ▪ <code> Code
  ▪ <fig> Figure
  ▪ <fig-group> Figure Group
  ▪ <graphic> Graphic
  ▪ <media> Media Object
  ▪ <preformat> Preformatted Text
  ▪ <supplementary-material> Supplementary Material Metadata
  ▪ <table-wrap> Table Wrapper
  ▪ <table-wrap-group> Table Wrapper Group
◦ <alternatives> Alternatives For Processing
  ▪ <disp-formula> Formula, Display
  ▪ <disp-formula-group> Formula, Display Group
  ▪ Lists
    ▪ <def-list> Definition List
    ▪ <list> List
  ▪ Math Elements
    ▪ <tex-math> TeX Math Equation
    ▪ <mml:math> Math (MathML Tag Set)
  ▪ <p> Paragraph
  ▪ Related Material Elements
    ▪ <related-article> Related Article Information
    ▪ <related-object> Related Object Information
  ▪ <ack> Acknowledgments
  ▪ <disp-quote> Quote, Displayed
  ▪ <speech> Speech
  ▪ <statement> Statement, Formal
  ▪ <verse-group> Verse Form for Poetry
  ▪ <x> X - Generated Text and Punctuation
• <sec> Section, zero or more
Any combination of:
◦ <notes> Notes
◦ <fn-group> Footnote Group
◦ <glossary> Glossary Elements List
◦ <ref-list> Reference List (Bibliographic)
Any combination of:
◦ Ownership Elements
  ▪ <attrib> Attribution
  ▪ <permissions> Permissions

8.4.35 <break> Line Break
An explicit line break in the text.

Attributes:
  @id Document Internal Identifier
  @xml:base Base
Content model:
This is an EMPTY element

8.4.36 <caption> Caption of a Figure, Table, etc.
Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).

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

Content model:
The following, in order:
• <title> Title, zero or one
• <p> Paragraph, zero or more

8.4.37 <chapter-title> Chapter Title in a Citation
Title of a cited book chapter.

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

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

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Accessibility Elements
  - <alt-text> Alternate Text Name (for a figure, etc.)
  - <long-desc> Long Description
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
8.4.39 `<chem-struct-wrap>` Chemical Structure Wrapper

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

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

**Content model:**

The following, in order:
- `<object-id>` Object Identifier, zero or more
- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- `<caption>` Caption of a Figure, Table, etc., zero or one
8.4.40 <citation-alternatives> Citation Alternatives

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
- One or more of any of:
  - <element-citation> Element Citation
  - <mixed-citation> Mixed Citation
  - <nlm-citation> NLM Citation

8.4.41 <city> City

The name of a city.

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

Content model:
- Text, numbers, or special characters, zero or more

8.4.42 <code> Code

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

Attributes:
- @code-type Type of Code
- @code-version Code Version
- @executable Executable
- @id Document Internal Identifier
Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospaced Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• 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
•Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

8.4.43 <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 Document Internal Identifier
@spanspan Space (NISO JATS table model)
@style Style (NISO JATS table model; MathML Tag Set)
@valign Vertical Alignment (NISO JATS table model)
8.4.44 `<colgroup>` Table Column Group (NISO JATS table model)
A container element to hold column descriptions (element `<col>`) for a group of columns in a table—or for all of the columns in the table if there is only one `<colgroup>` in the table. Attributes on the `<colgroup>` apply to all of the columns in the group unless over-ridden on the `<col>`.(This element is based on and intended to be converted easily to the XHTML `<colgroup>` element.)

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

Content model:
- `<col>` Table Column (NISO JATS table model), zero or more

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

Content model:
Any combination of:
- Text, numbers, or special characters
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- Address Elements
  - `<addr-line>` Address Line
  - `<city>` City
  - `<country>` Country: in an Address
  - `<fax>` Fax Number: in an Address
  - `<institution>` Institution Name: in an Address
  - `<institution-wrap>` Institution Wrapper
  - `<phone>` Phone Number: in an Address
8.4.46 <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.
8.4.47 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

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

Content model:
  Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    ◦ <email> Email Address
    ◦ <ext-link> External Link
    ◦ <uri> Uniform Resource Identifier (URI)
  • <inline-supplementary-material> Inline Supplementary Material Metadata
  • Related Material Elements
    ◦ <related-article> Related Article Information
    ◦ <related-object> Related Object Information
  • <hr> Horizontal Rule
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <overline-start> Overline Start
    ◦ <overline-end> Overline End
    ◦ <roman> Roman
    ◦ <sans-serif> Sans Serif
    ◦ <sc> Small Caps
    ◦ <strike> Strike Through
    ◦ <underline> Underline
    ◦ <underline-start> Underline Start
    ◦ <underline-end> Underline End
    ◦ <ruby> Ruby Annotation Wrapper
  • <alternatives> Alternatives For Processing
  • Inline Display Elements
    ◦ <inline-graphic> Graphic, Inline
    ◦ <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 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
8.4.48 `<compound-kwd>` Compound Keyword
Wrapper element for multi-part keywords (for example, a code and its meaning).

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

Content model:
```
<compound-kwd-part> Compound Keyword Part, one or more
```

8.4.49 `<compound-kwd-part>` Compound Keyword Part
Individual component of a multi-part keyword (for example, a code, the code’s meaning).

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

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

Content model:
<compound-subject-part> Compound Subject Part Name, one or more

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

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
8.4.52 <conf-acronym> Conference Acronym
Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).

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

Content model:
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 Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <milestone-end> Milestone End
8.4.53 <conf-date> Conference Date

Date(s) on which a conference was held.

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

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

8.4.54 <conf-loc> Conference Location

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

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

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

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

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ° <email> Email Address
  ° <ext-link> External Link
8.4.56 <conf-num> Conference Number

Sequential number of a conference.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
8.4.57 <conf-sponsor> Conference Sponsor

One organization identified as a sponsor of a conference.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
8.4.58 <conf-theme> Conference Theme

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
8.4.59 <conference> Conference Information

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

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
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

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

Content model:
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
8.4.61 `<contrib-group>` Contributor Group

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

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

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

8.4.62 `<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 (Japan Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:
- `@authenticated` Authenticated
- `@content-type` Type of Content
- `@contrib-id-type` Contributor Identifier Type
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language

Content model:
- Text, numbers, or special characters

8.4.63 `<copyright-holder>` Copyright Holder

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
8.4.64 <copyright-statement> Copyright Statement
Copyright notice or statement, suitable for printing or display.

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

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

The year of copyright.

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

Content model:
- Text, numbers, or special characters

8.4.66 `<corresp>` Correspondence Information

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Address Elements
    - `<addr-line>` Address Line
    - `<city>` City
    - `<country>` Country: in an Address
    - `<fax>` Fax Number: in an Address
    - `<institution>` Institution Name: in an Address
    - `<institution-wrap>` Institution Wrapper
    - `<phone>` Phone Number: in an Address
    - `<postal-code>` Postal Code
    - `<state>` State or Province
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<inline-supplementary-material>` Inline Supplementary Material Metadata
  - Related Material Elements
    - `<related-article>` Related Article Information
    - `<related-object>` Related Object Information
  - `<hr>` Horizontal Rule
  - Emphasis Elements
    - `<bold>` Bold
    - `<fixed-case>` Fixed Case
    - `<italic>` Italic
    - `<monospace>` Monospace Text (Typewriter Text)
    - `<overline>` Overline
    - `<overline-start>` Overline Start
    - `<overline-end>` Overline End
    - `<roman>` Roman
8.4.67 <count> Count
Generic count element to count anything a NISO JATS user organization may wish to count in a document. The @count attribute will name what is being counted (such as footnotes, tables, sections, contributors, images, etc.) The @count attribute will state how many of the objects are in the document.

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

Content model:
This is an EMPTY element.

8.4.68 <country> Country: in an Address
Country name used within an address.

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

Content model:
Any combination of:
- Text, numbers, or special characters
8.4.69 <counts> Counts
Container element for counts of a document (for example, number of tables, number of figures, number of words).

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

Content model:
The following, in order:
• <count> Count, zero or more
• <fig-count> Figure Count, zero or one
• <table-count> Table Count, zero or one
• <equation-count> Equation Count, zero or one
• <ref-count> Reference Count, zero or one
• <page-count> Page Count, zero or one
• <word-count> Word Count, zero or one

8.4.70 <custom-meta> Custom Metadata
Wrapper element for a single piece of metadata not otherwise defined in the Tag Suite.

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

Content model:
The following, in order:
• <meta-name> Metadata Data Name for Custom Metadata
• <meta-value> Metadata Data Value for Custom Metadata

8.4.71 <custom-meta-group> Custom Metadata Group
Container element for metadata not otherwise defined in the Tag Suite.

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

Content model:
<custom-meta> Custom Metadata, one or more

8.4.72 <data-title> Data Title
The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

8.4.73 <date> Date
Container element for the parts of a single calendar date.

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

Content model:
The following, in order:
- Optionally any one of:
  - The following, in order:
    - <day> Day, zero or one
    - <month> Month, zero or one
  - <season> Season
  - <year> Year, zero or one
  - <era> Era of Time, zero or one
  - <string-date> Date as a String, zero or one

8.4.74 <date-in-citation> Date within a Citation
Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

Attributes:
@calendar Calendar
@content-type Type of Content
@id Document Internal Identifier
Content model:
Any combination of:
• Text, numbers, or special characters
• <day> Day
• <era> Era of Time
• <month> Month
• <season> Season
• <year> Year
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• <x> X - Generated Text and Punctuation

8.4.75 <day> Day
Numeric, two-digit value of the day of the month.

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

Content model:
Text, numbers, or special characters

8.4.76 <def> Definition List: Definition
Definition, explanation, or expansion of a word, phrase, or abbreviation.

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

Content model:
Any one of:
• <p> Paragraph, one or more

8.4.77 <def-head> Definition List: Definition Head
Heading over the second column (the definition column) of a definition list (two-part list).
Attributes:

@id Document Internal Identifier
@xml:base Base

Content model:

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

8.4.78 <def-item> Definition List: Definition Item
One item in a definition (two-part) list.

Attributes:

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

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

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

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

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

8.4.80 <degrees> Degree(s)
Academic titles or professional certifications displayed following a personal name (for example, “MD”, “PhD”).

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  ◦ <bold> Bold
8.4.81 <disp-formula> Formula, Display

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

**Attributes:**

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

**Content model:**

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address  
  - <ext-link> External Link  
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information  
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
8.4.82 <disp-formula-group> Formula, Display Group
Container element for equations or other mathematical expressions.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
+xml:base Base
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
  • <abstract> Abstract, zero or more
  • <kwd-group> Keyword Group, zero or more
  • Any combination of:
    ◦ Accessibility Elements
      ▪ <alt-text> Alternate Text Name (for a figure, etc.)
      ▪ <long-desc> Long Description
    ◦ Linking Elements
      ▪ <email> Email Address
      ▪ <ext-link> External Link
      ▪ <uri> Uniform Resource Identifier (URI)
  • Any combination of:
    ◦ <disp-formula> Formula, Display
    ◦ <disp-formula-group> Formula, Display Group

8.4.83 <disp-quote> Quote, Displayed
Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.

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

Content model:
The following, in order:
  • <label> Label (of an Equation, Figure, Reference, etc.), zero or one
  • <title> Title, zero or one
  • Any combination of:
    ◦ Paragraph-level Display Elements
      ▪ <address> Address/Contact Information
      ▪ <array> Array (Simple Tabulation)
      ▪ <boxed-text> Boxed Text
      ▪ <chem-struct-wrap> Chemical Structure Wrapper
      ▪ <code> Code
      ▪ <fig> Figure
      ▪ <fig-group> Figure Group
      ▪ <graphic> Graphic
      ▪ <media> Media Object
      ▪ <preformat> Preformatted Text
      ▪ <supplementary-material> Supplementary Material Metadata
      ▪ <table-wrap> Table Wrapper
      ▪ <table-wrap-group> Table Wrapper Group
    ◦ <alternatives> Alternatives For Processing
    ◦ <disp-formula> Formula, Display
    ◦ <disp-formula-group> Formula, Display Group
    ◦ Lists
      ▪ <def-list> Definition List
      ▪ <list> List
    ◦ Math Elements
      ▪ <tex-math> TeX Math Equation
      ▪ <mml:math> Math (MathML Tag Set)
    ◦ <p> Paragraph
    ◦ Related Material Elements
      ▪ <related-article> Related Article Information
8.4.84 <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
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

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

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

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

Content model:
One or more of any of:
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- <string-date> Date as a String
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
8.4.86 <location-id> Electronic Location Identifier

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

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

Content model:
Text, numbers, or special characters

8.4.87 <email> Email Address

Electronic mail address of a person or institution.

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

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

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

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

**Content model:**
This is an EMPTY element

8.4.89 **<era>** Era of Time

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

**Attributes:**
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
8.4.90 <etal> Et Al.

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

Attributes:

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

Content model:

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

Link to an external file or resource.

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

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

Portion of an address that contains a fax number.

**Attributes:**

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

**Content model:**

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 Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 Tag Set)
8.4.93 <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 Document Internal Identifier
- @orientation Orientation
- @position Position
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:

The following, in order:
- <object-id> Object Identifier, zero or more
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <caption> Caption of a Figure, Table, etc., zero or more
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- Any combination of:
  - Accessibility Elements
  - Linking Elements
  - Uniform Resource Identifier (URI)
- Any combination of:
  - Formula, Display
  - Formula, Display Group
  - Chemical Structure Wrapper
  - Quote, Displayed
  - Speech
  - Statement, Formal
  - Verse Form for Poetry
  - Table Wrapper
  - Paragraph
  - Lists
    - Definition List
    - List
  - Alternatives For Processing
  - Array (Simple Tabulation)
  - Code
  - Graphic
  - Media Object
8.4.94 <fig-count> Figure Count
Number of <fig> elements that appear in the document.

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

Content model:
This is an EMPTY element

8.4.95 <fig-group> Figure Group
Container element for figures that are to be displayed together.

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

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <caption> Caption of a Figure, Table, etc., zero or one
• <abstract> Abstract, zero or more
• <kwd-group> Keyword Group, zero or more
• Any combination of:
  ◦ Accessibility Elements
    ▪ <alt-text> Alternate Text Name (for a figure, etc.)
    ▪ <long-desc> Long Description
  ◦ Linking Elements
    ▪ <email> Email Address
    ▪ <ext-link> External Link
    ▪ <uri> Uniform Resource Identifier (URI)
• Any combination of:
  ◦ <fig> Figure
  ◦ <alternatives> Alternatives For Processing
  ◦ <graphic> Graphic
  ◦ <media> Media Object

8.4.96 <fixed-case> Fixed Case
Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <x> X - Generated Text and Punctuation
• <break> Line Break

8.4.97 <floats-group> Floating Element Group
Container element for floating objects (figures, tables, text boxes, graphics, etc.) that occur within an article. Occurs outside of the narrative flow of the article.

Attributes:
@id Document Internal Identifier
@xml:base Base
8.4.98 <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 Document Internal Identifier
- @specific-use Specific Use
- @symbol Symbol
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <p> Paragraph, one or more

8.4.99 <fn-group> Footnote Group

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

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

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

8.4.100 <fpage> First Page

Page number on which a document starts.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @seq Sequence
- @specific-use Specific Use
- @xml:base Base
8.4.101 <front> Front Matter

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

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

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

8.4.102 <front-stub> Stub Front Metadata

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

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

Content model:
The following, in order:
  • <article-id> Article Identifier, zero or more
  • <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 more
    ◦ <volume-id> Volume Identifier, zero or more
    ◦ <volume-series> Volume Series, zero or one
    ◦ <issue> Issue Number, zero or more
    ◦ <issue-id> Issue Identifier, zero or more
    ◦ <issue-title> Issue Title, zero or more
    ◦ <issue-sponsor> Issue Sponsor, zero or more
    ◦ <issue-part> Issue Part, zero or one
    ◦ <volume-issue-group> Volume Issue Grouping, zero or more
    ◦ <isbn> ISBN, zero or more
    ◦ <supplement> Supplement Information, zero or one
  • Optionally any one of:
    ◦ The following, in order:
Optionally, the following sequence (in order):
- `<fpage>` First Page
- `<lpage>` Last Page, zero or one
- `<page-range>` Page Ranges, zero or one
  - `<elocation-id>` Electronic Location Identifier
• Any combination of:
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<product>` Product Information
  - `<supplementary-material>` Supplementary Material Metadata
• `<history>` History: Document History, zero or one
• `<permissions>` Permissions, zero or one
• `<self-uri>` URI for This Same Article Online, zero or more
• Any combination of:
  - Related Material Elements
    - `<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

### 8.4.103 `<funding-group>` Funding Group
Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.

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

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

### 8.4.104 `<funding-source>` Funding Source
Agency or organization that funded the research on which a work was based.

**Attributes:**
- `@country` Country
- `@id` Document Internal Identifier
- `@rid` Reference to an Identifier
- `@source-type` Source Type
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link
- `@xml:base` Base
- `@xml:lang` Language
8.4.105 <funding-statement> Funding Statement
Displayable prose statement that describes the funding for the research on which a work was based.

Attributes:
@id Document Internal Identifier
@rid Reference to an Identifier
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 Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
- `<x>` X - Generated Text and Punctuation
8.4.106 <given-names> Given (First) Names

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

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

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

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

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

Content model:
- The following, in order:
  - <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
      - <code> Code
      - <fig> Figure
      - <fig-group> Figure Group
      - <graphic> Graphic
      - <media> Media Object
      - <preformat> Preformatted Text
      - <supplementary-material> Supplementary Material Metadata
      - <table-wrap> Table Wrapper
      - <table-wrap-group> Table Wrapper Group
    - <alternatives> Alternatives For Processing
      - <disp-formula> Formula, Display
      - <disp-formula-group> Formula, Display Group
    - Lists
      - <def-list> Definition List
      - <list> List
    - Math Elements
      - <tex-math> TeX Math Equation
      - <mml:math> Math (MathML Tag Set)
    - <p> Paragraph
    - Related Material Elements
      - <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
8.4.108 <glyph-data> Glyph Data for a Private Character

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

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

Content model:
Text, numbers, or special characters

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

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

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

Content model:
This is an EMPTY element

8.4.110 <gov> Government Report, Cited

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
8.4.111 <graphic> Graphic
Description of and pointer to an external file containing a still image.

Attributes:

- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@mimeType` Mime Subtype
- `@mimeSubtype` Mime Type
- `@orientation` Orientation
- `@position` Position
- `@specificUse` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link
- `@xml:base` Base
- `@xml:lang` Language
- `@xmlns:xlink` XLink Namespace Declaration
8.4.112 `<history>` History: Document History

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

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

**Content model:**
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <x> X - Generated Text and Punctuation
• <break> Line Break
• <date> Date
• <string-date> Date as a String

8.4.113 <hr> Horizontal Rule
An explicit horizontal rule.

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

Content model:
  This is an EMPTY element

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

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

Content model:
  Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    ◦ <email> Email Address
    ◦ <ext-link> External Link
    ◦ <uri> Uniform Resource Identifier (URI)
  • <inline-supplementary-material> Inline Supplementary Material Metadata
  • Related Material Elements
    ◦ <related-article> Related Article Information
    ◦ <related-object> Related Object Information
  • <hr> Horizontal Rule
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <overline-start> Overline Start
8.4.115 <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 Document Internal Identifier
- @mime-subtype Mime Subtype
- @mimetype Mime Type
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xmlbase Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:

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

8.4.116 <inline-supplementary-material> Inline Supplementary Material Metadata

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

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

Content model:

Any combination of:
- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` Alternate Text Name (for a figure, etc.)
  - `<long-desc>` Long Description
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 Tag Set)
- Other Inline Elements
  - `<abbrev>` Abbreviation or Acronym
  - `<milestone-end>` Milestone End
  - `<milestone-start>` Milestone Start
  - `<named-content>` Named Special (Subject) Content
8.4.117 <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 Document Internal Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <hr> Horizontal Rule
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <overline-start> Overline Start
    - <overline-end> Overline End
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <underline-start> Underline Start
    - <underline-end> Underline End
    - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
    - <private-char> Private Character (Custom or Unicode)
    - <chem-struct> Chemical Structure (Display)
    - <inline-formula> Formula, Inline
8.4.118 <institution-id> Institution Identifier
A externally defined institutional identifier, whether publisher-specific (for example “AIP”) or from an established identifying authority (for example, “Ringgold” or “ISNI”).

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

Content model:
Text, numbers, or special characters

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

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

8.4.120 <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
- @id Document Internal Identifier
- @publication-format Format of Publication
- @specific-use Specific Use
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
8.4.121 <issn> ISSN
International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@publication-format Format of Publication
@pub-type Type of Publication
@specific-use Specific Use
@xml:base Base

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

8.4.122 <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:
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base

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

8.4.123 <issue> Issue Number
Issue number of a journal, or in rare instances, a book.

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

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

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

Attributes:

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

Content model:

Text, numbers, or special characters

8.4.125 <issue-part> Issue Part

Number, name, or other identifier of a sub-part of a journal issue.
8.4.126 <issue-sponsor> Issue Sponsor

Sponsor for an issue of the journal.
8.4.127 <issue-title> Issue Title

Theme or special title for a journal issue.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

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

8.4.128 <italic> Italic
Used to mark text that should appear in an italic or slanted font.
Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @toggle Toggle Switch
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
- <x> X - Generated Text and Punctuation
- <break> Line Break

8.4.129 <journal-id> Journal Identifier
Short code or abbreviation used as an identifier for a journal.
Attributes:
  @id Document Internal Identifier
  @journal-id-type Type of Journal Identifier
  @specific-use Specific Use
  @xml:base Base
  @xml:lang Language

Content model:
Text, numbers, or special characters

8.4.130 <journal-meta> Journal Metadata
Container element for metadata about the journal in which the article was published.

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

Content model:
The following, in order:
• <journal-id> Journal Identifier, zero or more
• <journal-title-group> Journal Title Group, zero or more
• Any combination of:
  • <contrib-group> Contributor Group
  • <aff> Affiliation
  • <aff-alternatives> Affiliation Alternatives
• <issn> ISSN, 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

8.4.131 <journal-subtitle> Journal Subtitle (Full)
Full subtitle of the journal in which the article was published.

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

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

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

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

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

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

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

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

8.4.134 <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 Document Internal 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 Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• ◦ X - Generated Text and Punctuation
• <break> Line Break

8.4.135 <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 Document Internal Identifier
@kwd-group-type Keyword Authority
@specific-use Specific Use
@xml:base Base
@xml:lang Language

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

8.4.136 <label> Label (of an Equation, Figure, Reference, etc.)
Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).

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

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

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

**Attributes:**

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

**Content model:**

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

### 8.4.138 `<license-p>` License Paragraph

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

**Attributes:**

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

**Content model:**

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <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
  ◦ <code> Code
  ◦ <fig> Figure
  ◦ <fig-group> Figure Group
  ◦ <graphic> Graphic
  ◦ <media> Media Object
  ◦ <preformat> Preformatted Text
  ◦ <supplementary-material> Supplementary Material Metadata
  ◦ <table-wrap> Table Wrapper
  ◦ <table-wrap-group> Table Wrapper Group
• <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
8.4.139 <list> List
Sequence of two or more items, which may or may not be ordered.

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

Content model:
The following, in order:
• <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

8.4.140 <list-item> List Item
Single item (one entry) in a list of items.

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

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• One or more of any of:
  • <p> Paragraph
  • Lists
    • <def-list> Definition List
    • <list> List

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

Content model:
Any combination of:
• Text, numbers, or special characters
• &lt;x&gt; X - Generated Text and Punctuation

8.4.142 &lt;lpage&gt; Last Page
Page number on which a document ends.

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

Content model:
Text, numbers, or special characters

8.4.143 &lt;media&gt; 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 Document Internal Identifier
@mimetype Mime Type
@orientation Orientation
@position Position
@specific-use Specific Use
@xlink:actuate Actuating the Link
@xlink:href Href (Linking Mechanism)
@xlink:role Role of the Link
@xlink:show Showing the Link
@xlink:title Title of the Link
@xlink:type Type of Link
@xml:base Base
@xml:lang Language
@xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
• Accessibility Elements
  ◦ &lt;alt-text&gt; Alternate Text Name (for a figure, etc.)
  ◦ &lt;long-desc&gt; Long Description
• &lt;abstract&gt; Abstract
• Linking Elements
  ◦ &lt;email&gt; Email Address
  ◦ &lt;ext-link&gt; External Link
  ◦ &lt;uri&gt; Uniform Resource Identifier (URI)
• &lt;caption&gt; Caption of a Figure, Table, etc.
• &lt;object-id&gt; Object Identifier
8.4.144 <meta-name> Metadata Data Name for Custom Metadata

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

Attributes:

@id Document Internal Identifier
@xml:base Base

Content model:

Any combination of:

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

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
- `<x>` X - Generated Text and Punctuation
8.4.146 `<milestone-end>` Milestone End
End of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

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

Content model:
This is an EMPTY element

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

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

Content model:
This is an EMPTY element

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

Content model:
Any combination of:
- Text, numbers, or special characters
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
• `<string-date>` Date as a String

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

• `<alternatives>` Alternatives For Processing

• Inline Display Elements
  ◦ `<inline-graphic>` Graphic, Inline
  ◦ `<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 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-acronym>` Conference Acronym

• `<conf-date>` Conference Date

• `<conf-loc>` Conference Location

• `<conf-name>` Conference Name

• `<conf-sponsor>` Conference Sponsor

• `<data-title>` Data Title

• `<date>` Date

• `<date-in-citation>` Date within a Citation

• `<day>` Day

• `<edition>` Edition Statement, Cited

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

• `<elocation-id>` Electronic Location Identifier

• `<etal>` Et AL

• `<fpage>` First Page

• `<gov>` Government Report, Cited

• `<institution>` Institution Name: in an Address

• `<institution-wrap>` Institution Wrapper

• `<isbn>` ISBN
8.4.149 <mml:math> Math (MathML Tag Set)
Use documentation for the Mathematical Markup Language (MathML) Tag Set (http://www.w3.org/TR/MathML3/ or http://www.w3.org/TR/MathML2/).

Attributes:
   @xmlns:mml MathML Namespace Declaration

8.4.150 <monospace> Monospace Text (Typewriter Text)
Used to mark text that should appear in a non-proportional font, such as courier.

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

Content model:
   Any combination of:
   • Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <overline-start> Overline Start
  ◦ <overline-end> Overline End
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <underline-start> Underline Start
  ◦ <underline-end> Underline End
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <x> X - Generated Text and Punctuation
• <break> Line Break

8.4.151 <month> Month
Names one of the months of the year, such as “July” or “07”.

Attributes:
  @content-type Type of Content
  @id Document Internal Identifier
  @specific-use Specific Use
  @xml:base Base
  @xml:lang Language
**Content model:**
Text, numbers, or special characters

### 8.4.152 <name> Name of Person

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

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

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

### 8.4.153 <name–alternatives> Name Alternatives

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

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

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

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

**Content model:**
Any combination of:
- Text, numbers, or special characters
8.4.155 <nested-kwd> Nested Keyword

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

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

8.4.156 <nlm-citation> NLM Citation

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

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

Content model:
The following, in order:
- Any combination of:
  - <person-group> Person Group for a Cited Publication
  - <collab> Collaborative (Group) Author
- Any combination of:
  - <article-title> Article Title
  - <trans-title> Translated Title
  - <source> Source, zero or one
  - <patent> Patent Number, Cited, zero or one
  - <trans-source> Translated Source, zero or one
  - <year> Year, zero or one
- Any one of:
  - The following, in order:
    - <month> Month, zero or one
8.4.157 <note> Note in a Reference List
Non-citation content inside a bibliographic reference list.

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

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

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

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

Content model:
The following, in order:
• <sec-meta> Section Metadata, zero or one
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• Any combination of:
  ▪ Paragraph-level Display Elements
    ▪ <address> Address/Contact Information
    ▪ <array> Array (Simple Tabulation)
8.4.159 <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
- @id Document Internal Identifier
- @pub-id-type Type of Publication Identifier
- @specific-use Specific Use
- @xml:base Base

Content model:
Text, numbers, or special characters

8.4.160 <on-behalf-of> On Behalf of

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

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
- <x> X - Generated Text and Punctuation
- <institution> Institution Name: in an Address
- <institution-wrap> Institution Wrapper

### 8.4.161 <open-access> Open Access

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

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
8.4.162 <overline> Overline

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

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

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

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

Content model:
This is an EMPTY element

8.4.164 <overline-start> Overline Start
Milestone indicating the beginning of overline emphasis.

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

Content model:
This is an EMPTY element

8.4.165 <p> Paragraph
Textual unit or block; a textual paragraph.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  • <related-article> Related Article Information
  • <related-object> Related Object Information
• <hr> Horizontal Rule
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <overline-start> Overline Start
  • <overline-end> Overline End
  • <roman> Roman
8.4.166 <page-count> Page Count
Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

Attributes:
- @count Count
- @id Document Internal Identifier
- @xml:base Base

Content model:
This is an EMPTY element

8.4.167 <page-range> Page Ranges
Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

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

Content model:
Text, numbers, or special characters

8.4.168 <part-title> Part Title in a Citation
Title of part of a book (for example, chapter, module) described in a bibliographic reference.

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

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

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

Attributes:

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

Content model:

Any combination of:

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

Container element for copyright and license information.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

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

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

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

Attributes:
- @id Document Internal Identifier
- @person-group-type Type of People in the Person Group
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Contributor Naming Elements
  - <anonymous> Anonymous
8.4.172 `<phone>` Phone Number: in an Address

Portion of an address which contains a phone number.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<inline-supplementary-material>` Inline Supplementary Material Metadata
  - Related Material Elements
    - `<related-article>` Related Article Information
    - `<related-object>` Related Object Information
  - `<hr>` Horizontal Rule
  - Emphasis Elements
    - `<bold>` Bold
    - `<fixed-case>` Fixed Case
    - `<italic>` Italic
    - `<monospace>` Monospace Text (Typewriter Text)
    - `<overline>` Overline
    - `<overline-start>` Overline Start
    - `<overline-end>` Overline End
    - `<roman>` Roman
    - `<sans-serif>` Sans Serif
    - `<sc>` Small Caps
    - `<strike>` Strike Through
    - `<underline>` Underline
    - `<underline-start>` Underline Start
    - `<underline-end>` Underline End
    - `<ruby>` Ruby Annotation Wrapper
  - `<alternatives>` Alternatives For Processing
  - Inline Display Elements
    - `<inline-graphic>` Graphic, Inline
    - `<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 Tag Set)
  - Other Inline Elements
    - `<abbrev>` Abbreviation or Acronym
    - `<milestone-end>` Milestone End
8.4.173 <postal-code> Postal Code

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

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

Content model:
- Text, numbers, or special characters, zero or more

8.4.174 <prefix> Prefix

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - Email Address
    - External Link
    - Uniform Resource Identifier (URI)
  - Inline Supplementary Material Metadata
  - Related Article Information
  - Related Object Information
  - Horizontal Rule
  - Emphasis Elements
    - Bold
    - Fixed Case
    - Italic
    - Monospace Text (Typewriter Text)
    - Overline
    - Overline Start
    - Overline End
    - Roman
    - Sans Serif
    - Small Caps
    - Strike Through
    - Underline
8.4.175 <preformat> Preformatted Text

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

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

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

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <overline-start> Overline Start
  • <overline-end> Overline End
  • <roman> Roman
8.4.177 `<principal-award-recipient>` Principal Award Recipient

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

Attributes:

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

Content model:

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

8.4.178 `<principal-investigator>` Principal Investigator

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

Attributes:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- `<contrib-id>` Contributor Identifier
- `<name>` Name of Person
- `<name-alternatives>` Name Alternatives
- `<string-name>` Name of Person (Unstructured)

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

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

Attributes:

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

Content model:

Any one of:
- Any one of:
8.4.180 <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 Document Internal Identifier
- @product-type Type of Product
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- xml:base Base
- xml:lang Language
- xmlns:xlink XLink Namespace Declaration

Content model:

Any combination of:

- Text, numbers, or special characters
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Related Elements
  - <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
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
8.4.181 <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
- @id Document Internal Identifier
- @iso-8601-date ISO-8601 Formatted Date
- @publication-format Format of Publication
- @pub-type Type of Publication
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- <day> Day
- <era> Era of Time
- <month> Month
- <season> Season
- <year> Year
- <string-date> Date as a String
- <> X - Generated Text and Punctuation

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

Identifier of a publication in a bibliographic reference or product description.

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

Content model:
Text, numbers, or special characters

8.4.183 <publisher> Publisher

Container element for information about the person, company, or other entity that published a work.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@xml:base Base

Content model:
Any one of:
• The following sequence (in order), one or more times:
  ° <publisher-name> Publisher’s Name
  ° <publisher-loc> Publisher’s Location, zero or one

8.4.184 <publisher-loc> Publisher’s Location
Place of publication, usually a city, such as New York or London.

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

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

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

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

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

This element is one half of a Ruby annotation (\<ruby\>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (\<rt\>) should be applied.

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

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

One item in a bibliographic list.

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

**Content model:**
The following, in order:
- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- One or more of any of:
  - Citation Elements
    - `<citation-alternatives>` Citation Alternatives
    - `<element-citation>` Element Citation
    - `<mixed-citation>` Mixed Citation
    - `<nlm-citation>` NLM Citation
  - `<note>` Note in a Reference List
  - `<x>` X - Generated Text and Punctuation

8.4.188 `<ref-count>` Reference Count

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

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

**Content model:**
This is an EMTPY element

8.4.189 `<ref-list>` Reference List (Bibliographic)

List of bibliographic references for a document or document component.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <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
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
    • <table-wrap> Table Wrapper
    • <table-wrap-group> Table Wrapper Group
  ◦ <alternatives> Alternatives For Processing
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group

Lists
• <def-list> Definition List
• <list> List

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

<p> Paragraph

Related Material Elements
• <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

8.4.190 <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 Document Internal Identifier
@issue Issue Number of a Related Article
@journal-id Journal Identifier of a Related Article
@journal-id-type Type of Journal Identifier
@page Page of Related Article
Content model:
Any combination of:
- Text, numbers, or special characters
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<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
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
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• `<comment>` Comment in a Citation
• `<conf-acronym>` Conference Acronym
• `<conf-date>` Conference Date
• `<conf-loc>` Conference Location
• `<conf-name>` Conference Name
• `<conf-sponsor>` Conference Sponsor
• `<data-title>` Data Title
• `<date>` Date
• `<date-in-citation>` Date within a Citation
• `<day>` Day
• `<edition>` Edition Statement, Cited
• Linking Elements
  ◦ `<email>` Email Address
  ◦ `<ext-link>` External Link
  ◦ `<uri>` Uniform Resource Identifier (URI)
• `<elocation-id>` Electronic Location Identifier
• `<etal>` Et Al.
• `<fpage>` First Page
• `<gov>` Government Report, Cited
• `<institution>` Institution Name: in an Address
• `<institution-wrap>` Institution Wrapper
• `<isbn>` ISBN
• `<issn>` ISSN
• `<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
• `<version>` Version Statement
• `<volume>` Volume Number
• `<volume-ident>` Volume Identifier
• `<volume-series>` Volume Series
• `<year>` Year
• `<fn>` Footnote
• `<target>` Target of an Internal Link
• `<xref>` X (cross) Reference
• Baseline Change Elements
  ◦ `<sub>` Subscript
8.4.191 <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` Document Internal Identifier
- `@link-type` Type of Link (for a Related Object)
- `@object-id` Object Identifier
- `@object-id-type` Object Identifier Type
- `@object-type` Object Type
- `@source-id` Source Identifier
- `@source-id-type` Source Identifier Type
- `@source-type` Source Type
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link
- `@xml:base` Base
- `@xml:lang` Language
- `@xmlns:xlink` XLink Namespace Declaration

Content model:

Any combination of:

- Text, numbers, or special characters
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<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
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
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- `<inline-graphic>` Graphic, Inline
- `<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 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-acronym>` Conference Acronym
- `<conf-date>` Conference Date
- `<conf-loc>` Conference Location
- `<conf-name>` Conference Name
- `<conf-sponsor>` Conference Sponsor
- `<data-title>` Data Title
- `<date>` Date
- `<date-in-citation>` Date within a Citation
- `<day>` Day
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<elocation-id>` Electronic Location Identifier
- `<etal>` Et Al.
- `<fpage>` First Page
- `<gov>` Government Report, Cited
- `<institution>` Institution Name: in an Address
- `<institution-wrap>` Institution Wrapper
- `<isbn>` ISBN
- `<issn>` ISSN
- `<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

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8.4.192 <response> Response

Reply, response, or commentary concerning the journal article. In the typical case, the response is included in the same XML package as the original article, attached at the end of the article proper. Metadata that differs from that of the original article (for example, title, author), may be captured using the <front-stub> element; if the <front-stub> element is used, any metadata not specifically tagged is inherited from the original article.

Attributes:
@id Document Internal Identifier
@response-type Type of Response
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• 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

8.4.193 <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
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
8.4.194 <roman> Roman
Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
8.4.195 8<rp> Ruby Parenthesis

Used to provide spacing and a parenthesis to surround Ruby Text (<rt>), for older systems that do not handle Ruby formatting properly.

Attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>@id</td>
<td>Document Internal Identifier</td>
</tr>
<tr>
<td>@xml:base</td>
<td>Base</td>
</tr>
</tbody>
</table>

Content model:

Text, numbers, or special characters
8.4.196 `<rt>` Ruby Textual Annotation
This element is one half of a Ruby annotation ( `<ruby>` ), and it contains the text that annotates the material in the Ruby Base ( `<rb>` ), which may be a small as a single character.

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

Content model:
Text, numbers, or special characters, zero or more

8.4.197 `<ruby>` Ruby Annotation Wrapper
An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The `<ruby>` element contains a Ruby Base ( `<rb>` element) which contains the document text and a Ruby Textual Annotation ( `<rt>` element) that applies to that base text.

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

Content model:
The following, in order:
- `<rb>` Ruby Base Text
- Any one of:
  - `<rt>` Ruby Textual Annotation
  - The following, in order:
    - `<rp>` Ruby Parenthesis
    - `<rt>` Ruby Textual Annotation
    - `<rp>` Ruby Parenthesis

8.4.198 `<sans-serif>` Sans Serif
Used to mark text that should appear in a sans-serif font.

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

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

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

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

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

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

Content model:
Text, numbers, or special characters

8.4.201 <sec> Section
Headed group of material; the basic structural unit of the body of a document.

Attributes:
@disp-level Display Level of a Heading
@id Document Internal Identifier
@sec-type Type of Section
@specific-use Specific Use
@xml:base Base
@xml:lang Language
8.4.202 <sec-meta> Section Metadata

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <contrib-group> Contributor Group, zero or more
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- <permissions> Permissions, zero or one
8.4.203 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <milestone-end> Milestone End
  - <milestone-start> Milestone Start
  - <named-content> Named Special (Subject) Content
8.4.204 <series> Series

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <hr> Horizontal Rule
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <overline-start> Overline Start
    - <overline-end> Overline End
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <underline-start> Underline Start
    - <underline-end> Underline End
    - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
    - <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 Tag Set)
  - Other Inline Elements
    - <abbrev> Abbreviation or Acronym
    - <milestone-end> Milestone End
    - <milestone-start> Milestone Start
    - <named-content> Named Special (Subject) Content
8.4.205 <series-text> Series Text: Header Text to Describe

Textual description of the series of articles that is named in a <series-title> element.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <milestone-end> Milestone End
  - <milestone-start> Milestone Start
8.4.206 <series-title> Series Title
Title of the journal series (bibliographic) or series of articles internal to one issue of a journal

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

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

One contributor’s signature and associated material (such as a text restatement of the affiliation) inside a signature block.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
8.4.208 <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 graphic signature or description of the person(s) responsible for or attesting to the content.

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

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

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:

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

Content model:

Any combination of:

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

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - **<email>** Email Address
  - **<ext-link>** External Link
8.4.211 `<speaker>` Speaker

One who utters one segment of a speech or dialog.

Attributes:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
8.4.212 <speech> Speech

One exchange (a single speech) in a real or imaginary conversation between two or more entities.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
8.4.213 <state> State or Province

The name of a state, province, territory or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, or parish. The names for such a unit vary geopolitically.

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

Content model:
- Text, numbers, or special characters, zero or more

8.4.214 <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

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

Content model:
- The following, in order:
  - <label> Label (of an Equation, Figure, Reference, etc.), zero or one
  - <title> Title, zero or one
  - <abstract> Abstract, zero or more
  - <kwd-group> Keyword Group, zero or more
  - One or more of any of:
    - <p> Paragraph
    - <statement> Statement, Formal
  - Any combination of:
    - Ownership Elements
      - <attrib> Attribution
    - <permissions> Permissions

8.4.215 <std> Standard, Cited

Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Emphasis Elements
8.4.216 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:

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

Content model:

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

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

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

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

Sequence and flow of an extended conference name (for example, “The Learned Society’s Conference on What’s Hot at the University of Wherever on 21–27 July 2011”).

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

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

Date represented as text.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
8.4.220 <string-name> Name of Person (Unstructured)

Container element for personal names captured with mixed-content where the order of the name components is not enforced.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @name-style Name Style
- @specific-use Specific Use
- @xml:base Base
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 Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
- `<x>` X - Generated Text and Punctuation
- `<degrees>` Degree(s)
- `<given-names>` Given (First) Names
- `<prefix>` Prefix
- `<surname>` Surname
- `<suffix>` Suffix
8.4.221 <styled-content> Styled Special (Subject) Content

Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace or any of the other emphasis elements, and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:
- @alt Alternative Text
- @id Document Internal Identifier
- @specific-use Specific Use
- @style Style (NISO JATS table model; MathML Tag Set)
- @style-type Style Type
- @toggle Toggle Switch
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospaced Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
• Baseline Change Elements
  ◦ `<sub>` Subscript
  ◦ `<sup>` Superscript
• `<>` 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
  ◦ `<code>` Code
  ◦ `<fig>` Figure
  ◦ `<fig-group>` Figure Group
  ◦ `<graphic>` Graphic
  ◦ `<media>` Media Object
  ◦ `<preformat>` Preformatted Text
  ◦ `<supplementary-material>` Supplementary Material Metadata
  ◦ `<table-wrap>` Table Wrapper
  ◦ `<table-wrap-group>` Table Wrapper Group
• `<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

8.4.222 `<sub>` Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:
@arrange Arrangement of Subscripts and Superscripts
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base

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

An article that is completely contained inside another article.

Attributes:
- @article-type Type of Article
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- 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

8.4.224 <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.
8.4.225 <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 Document Internal Identifier
@xml:base Base

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

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

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

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

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

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

Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:
- @arrange: Arrangement of Subscripts and Superscripts
- @id: Document Internal Identifier
- @specific-use: Specific Use
- @xml:base: Base

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

Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:

@id Document Internal Identifier
@specific-use Specific Use
@supplement-type Type of Supplement
@xml:base Base
@xml:lang Language

Content model:

Any combination of:

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

Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

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

Content model:
The following, in order:
- <object-id> Object Identifier, zero or more
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <caption> Caption of a Figure, Table, etc., zero or more
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> Alternate Text Name (for a figure, etc.)
    - <long-desc> Long Description
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
- Any combination of:
8.4.231 <surname> Surname
Surname of a person.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
8.4.232 <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 Document Internal Identifier
- @rules Rules (NISO JATS table model)
- @specific-use Specific Use
- @style Style (NISO JATS table model; MathML Tag Set)
- @summary Summary (NISO JATS table model)
- @width Width (NISO JATS table model)
- @xml:base Base

Content model:
The following, in order:
- Any one of:
  - <col> Table Column (NISO JATS table model), zero or more
  - <colgroup> Table Column Group (NISO JATS table model), zero or more
- Any one of:
  - The following, in order:
    - <thead> Table Header (NISO JATS table model), zero or one
    - <tfoot> Table Footer (NISO JATS table model), zero or one
    - <tbody> Table Body (NISO JATS table model), one or more
    - <tr> Table Row (NISO JATS table model), one or more

8.4.233 <table-count> Table Count
Number of <table-wrap> elements that appear in the document.

Attributes:
- @count Count
- @id Document Internal Identifier
- @xml:base Base
Content model:
This is an EMTPY element

8.4.234 <table-wrap> Table Wrapper
Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

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

Content model:
The following, in order:
• <object-id> Object Identifier, zero or more
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <caption> Caption of a Figure, Table, etc., zero or one
• <abstract> Abstract, zero or more
• <kwd-group> Keyword Group, zero or more
• Any combination of:
  ◦ Accessibility Elements
    • <alt-text> Alternate Text Name (for a figure, etc.)
    • <long-desc> Long Description
  ◦ Linking Elements
    • <email> Email Address
    • <ext-link> External Link
    • <uri> Uniform Resource Identifier (URI)
• Any combination of:
  ◦ <disp-quote> Quote, Displayed
  ◦ <speech> Speech
  ◦ <statement> Statement, Formal
  ◦ <verse-group> Verse Form for Poetry
  ◦ Lists
    • <def-list> Definition List
    • <list> List
  ◦ <alternatives> Alternatives For Processing
  ◦ <chem-struct-wrap> Chemical Structure Wrapper
  ◦ <code> Code
  ◦ <graphic> Graphic
  ◦ <media> Media Object
  ◦ <preformat> Preformatted Text
  ◦ <table> Table (NISO JATS table model)
• Any combination of:
  ◦ <table-wrap-foot> Table Wrapper Footer
  ◦ Ownership Elements
    • <attrib> Attribution
    • <permissions> Permissions

8.4.235 <table-wrap-foot> Table Wrapper Footer
Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• One or more of any of:
  ◦ <p> Paragraph
  ◦ <fn-group> Footnote Group
  ◦ <fn> Footnote
  ◦ Ownership Elements
    ▪ <attrib> Attribution
    ▪ <permissions> Permissions
  ◦ ◦ X - Generated Text and Punctuation

8.4.236 <table-wrap-group> Table Wrapper Group
Container element for tables (<table-wrap> elements) that are to be displayed together.

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

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <caption> Caption of a Figure, Table, etc., zero or one
• <abstract> Abstract, zero or more
• <kwd-group> Keyword Group, zero or more
• Any combination of:
  ◦ Accessibility Elements
    ▪ <alt-text> Alternate Text Name (for a figure, etc.)
  ◦ <long-desc> Long Description
  ◦ Linking Elements
    ▪ <email> Email Address
    ▪ <ext-link> External Link
    ▪ <uri> Uniform Resource Identifier (URI)
  ◦ <table-wrap> Table Wrapper, one or more

8.4.237 <target> Target of an Internal Link
Anchor or fixed location that acts as the target for a cross-reference.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@target-type Type of Target
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
8.4.238 <tbody> Table Body (NISO JATS table model)

Container element that holds the rows and columns in one of the body (as opposed to the header) portions of a table.

**Attributes:**

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

**Content model:**

- `<tr>` Table Row (NISO JATS table model), one or more
8.4.239 `<td>` Table Data Cell (NISO JATS table model)

One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML `td` element.)

Attributes:
- `@abbr` Abbreviation (NISO JATS table model)
- `@align` Horizontal Alignment (NISO JATS table model)
- `@axis` Table Cell Axis (NISO JATS table model)
- `@char` Table Cell Alignment Character (NISO JATS table model)
- `@charoff` Table Character Offset (NISO JATS table model)
- `@colspan` Column Span (NISO JATS table model)
- `@content-type` Type of Content
- `@headers` Headers (NISO JATS table model)
- `@id` Document Internal Identifier
- `@rowspan` Row Span (NISO JATS table model)
- `@scope` Scope (NISO JATS table model)
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@valign` Vertical Alignment (NISO JATS table model)
- `@xml:base` Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- `<hr>` Horizontal Rule
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<overline-start>` Overline Start
  - `<overline-end>` Overline End
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<underline-start>` Underline Start
  - `<underline-end>` Underline End
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 Tag Set)
- Other Inline Elements
  - `<abbrev>` Abbreviation or Acronym
  - `<milestone-end>` Milestone End
8.4.240 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

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

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

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

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

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

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

**Attributes:**
- `@content-type Type of Content`
- `@id Document Internal Identifier`
- `@notation Notation`
- `@specific-use Specific Use`
- `@version Version of TeX or LaTeX`
- `@xml:base Base`

**Content model:**
- Text, numbers, or special characters
8.4.243 <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 graphic version of the table).

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <private-char> Private Character (Custom or Unicode)
- <label> Label (of an Equation, Figure, Reference, etc.)
- Math Elements
  - <tex-math> TeX Math Equation
  - <mml:math> Math (MathML Tag Set)
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

8.4.244 <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 Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
Content model:
<tr> Table Row (NISO JATS table model), one or more

8.4.245 <th> Table Header Cell (NISO JATS table model)
One cell in the table header, as opposed to an ordinary cell in the body of a table. (This element is based on and intended to be converted easily to the XHTML th element.)

Attributes:
@abbr Abbreviation (NISO JATS table model)
@align Horizontal Alignment (NISO JATS table model)
@axis Axis (NISO JATS table model)
@char Table Cell Alignment Character (NISO JATS table model)
@charoff Table Character Offset (NISO JATS table model)
@colspan Column Span (NISO JATS table model)
@content-type Type of Content
@headers Headers (NISO JATS table model)
@id Document Internal Identifier
@rowspan Row Span (NISO JATS table model)
@scope Scope (NISO JATS table model)
@style Style (NISO JATS table model; MathML Tag Set)
@valign Vertical Alignment (NISO JATS table model)
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
  • Linking Elements
  • Email Address
  • External Link
  • Uniform Resource Identifier (URI)
• Inline Supplementary Material Metadata
• Related Material Elements
  • Related Article Information
  • Related Object Information
• Horizontal Rule
• Emphasis Elements
  • Bold
  • Fixed Case
  • Italic
  • Monospace Text (Typewriter Text)
  • Overline
  • Overline Start
  • Overline End
  • Roman
  • Sans Serif
  • Small Caps
  • Strike Through
  • Underline
  • Underline Start
  • Underline End
  • Ruby Annotation Wrapper
• Alternatives For Processing
• Inline Display Elements
  • Graphic, Inline
  • Private Character (Custom or Unicode)
• Chemical Structure (Display)
• Formula, Inline
• Math Elements
  • TeX Math Equation
8.4.246 <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 Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
- <tr> Table Row (NISO JATS table model), one or more

8.4.247 <time-stamp> Time Stamp for Cited Work
This element is deprecated; avoid using it. Use <date-in-citation>.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
8.4.248 <title> Title

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <hr> Horizontal Rule
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <milestone-end> Milestone End
  - <milestone-start> Milestone Start
8.4.249 <title-group> Title Group
Container element to hold the various titles for a document or a document component.

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

Content model:
The following, in order:
• <article-title> Article Title
• <subtitle> Document Subtitle, zero or more
• <trans-title-group> Translated Title Group, zero or more
• <alt-title> Alternate Title, zero or more
• <fn-group> Footnote Group, zero or one

8.4.250 <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 Document Internal Identifier
@style Style (NISO JATS table model; MathML Tag Set)
@valign Vertical Alignment (NISO JATS table model)
@xml:base Base

Content model:
One or more of any of:
• <th> Table Header Cell (NISO JATS table model)
• <td> Table Data Cell (NISO JATS table model)

8.4.251 <trans-abstract> Translated Abstract
Abstract that has been translated into a language other than that in which the work was originally published.

Attributes:
@abstract-type Type of Abstract
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
The following, in order:
  • <object-id> Object Identifier, zero or more
  • The following, in order:
    ◦ <sec-meta> Section Metadata, zero or one
    ◦ <label> Label (of an Equation, Figure, Reference, etc.), zero or one
    ◦ <title> Title, zero or one
  • Any combination of:
    • Paragraph-level Display Elements
      • <address> Address/Contact Information
      • <array> Array (Simple Tabulation)
      • <boxed-text> Boxed Text
      • <chem-struct-wrap> Chemical Structure Wrapper
      • <code> Code
      • <fig> Figure
      • <fig-group> Figure Group
      • <graphic> Graphic
      • <media> Media Object
      • <preformat> Preformatted Text
      • <supplementary-material> Supplementary Material Metadata
      • <table-wrap> Table Wrapper
      • <table-wrap-group> Table Wrapper Group
      • <alternatives> Alternatives For Processing
      • <disp-formula> Formula, Display
      • <disp-formula-group> Formula, Display Group
    • Lists
      • <def-list> Definition List
      • <list> List
    • Math Elements
      • <tex-math> TeX Math Equation
      • <mml:math> Math (MathML Tag Set)
    • <p> Paragraph
    • Related Material Elements
      • <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)

8.4.252 <trans-source> Translated Source
Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

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

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8.4.253 <trans-subtitle> Translated Subtitle

Document or document component subtitle that has been translated into a language other than that of the original document or document component subtitle.

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
8.4.254 <trans-title> Translated Title

Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.
Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <hr> Horizontal Rule
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <overline-start> Overline Start
    - <overline-end> Overline End
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <underline-start> Underline Start
    - <underline-end> Underline End
    - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
    - <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 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
  - Baseline Change Elements
    - <sub> Subscript
    - <sup> Superscript
  - <x> X - Generated Text and Punctuation
  - <break> Line Break
8.4.255 <trans-title-group> Translated Title Group

Container element for translated and transliterated titles.

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

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

8.4.256 <underline> Underline

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

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @toggle Toggle Switch
- @underline-style Appearance of the Underline
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <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
  - <ruby> Ruby Annotation Wrapper
- <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
8.4.257 <underline-end> Underline End
Milestone indicating the end of underlined text.

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

Content model:
This is an EMPTY element

8.4.258 <underline-start> Underline Start
Milestone indicating the start of underlined text.

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

Content model:
This is an EMPTY element

8.4.259 <unstructured-kwd-group> Unstructured Keyword Group
Container element for one set of keywords used to describe a document, where the individual keywords are not tagged as separate <kwd>s but instead are all run together in one long text field.

Attributes:
- @id Document Internal Identifier
- @kwd-group-type Keyword Authority
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
8.4.260 <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
@id Document Internal Identifier
@specific-use Specific Use
@xlink:actuate Actuating the Link
@xlink:href Href (Linking Mechanism)
@xlink:role Role of the Link
@xlink:show Showing the Link
@xlink:title Title of the Link
@xlink:type Type of Link
@xml:base Base
@xml:lang Language
@xmlns:xlink XLink Namespace Declaration
8.4.261 `<verse-group>` Verse Form for Poetry
Song, poem, or verse.

**Attributes:**
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language
Content model:
The following, in order:
- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- `<title>` Title, zero or one
- `<subtitle>` Document Subtitle, zero or one
- One or more of any of:
  - `<verse-line>` Line of a Verse
  - `<verse-group>` Verse Form for Poetry
- Any combination of:
  - Ownership Elements
    - `<attrib>` Attribution
    - `<permissions>` Permissions

8.4.262 `<verse-line>` Line of a Verse
One line of a poem or verse.

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

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

A full version statement, which may be only a number, for data or software that is cited or described

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

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

Attributes:

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

Content model:

Any combination of:

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

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

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

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

A grouping element to hold related volume and issue elements

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

Content model:
The following, in order:
- <volume> Volume Number, zero or more
- <volume-id> Volume Identifier, zero or more
- <volume-series> Volume Series, zero or one
- <issue> Issue Number, zero or more
- <issue-id> Issue Identifier, zero or more
- <issue-title> Issue Title, zero or more
- <issue-sponsor> Issue Sponsor, zero or more
- <issue-part> Issue Part, zero or one

8.4.267 <volume-series> Volume Series

Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

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

Content model:
Any combination of:
- Text, numbers, or special characters
8.4.268 <word-count> Word Count

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

Attributes:
- @count Count
- @id Document Internal Identifier
- @xml:base Base

Content model:
- This is an EMPTY element
8.4.269 <x> X - Generated Text and Punctuation

Generated text or punctuation. Typically used when:

- an archive decides not to have text generated on display and thus to pre-generate such things as commas or semicolons between keywords, or
- an archive receives text with <x> tags embedded and wishes to retain them.

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <overline-start> Overline Start
  - <overline-end> Overline End
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <underline-start> Underline Start
  - <underline-end> Underline End
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
  - <x> X - Generated Text and Punctuation

8.4.270 <xref> X (cross) Reference

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

Attributes:

- @alt Alternative Text
- @id Document Internal Identifier
- @ref-type Type of Cross-Reference
- @rid Reference to an Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:

Any combination of:

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

Representation, usually numerical, of a calendar year.

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

Content model:
- Text, numbers, or special characters
8.5 Attributes

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

Each attribute is identified with a name, expanded information name, and definition, as it is listed in Section 7, Tag Suite Components. For some attributes a “Usage” section provides additional information on how the attribute is intended to be used or interpreted.

Following that appears the modeling information specific to this Tag Set. For attributes that are associated with only one element, or for which the usage is the same for all elements in the Tag Set, there appears:

- a list of all of the elements associated with the attribute;
- an optionality description:
  - “this attribute may be used if the element is used” means the attribute is optional;
  - “this attribute must be used if the element is used” means the attribute is required;
  - “this attribute must have the value …” means that the attribute has a fixed value.
- a table showing the allowed value(s) of the attribute and describing the meaning of each value. If there is a default value, that value appears in bold.

If there is more than one element associated with an attribute in the Tag Set and those elements use the attribute differently (for example, one element provides a default value for the attribute and on other elements there is no default value), the specifics are repeated for each group of elements that has the same usage and values for the attribute.

8.5.1 @abbr Abbreviation (NISO JATS table model)

An abbreviated version of the cell’s content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell’s header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHMTL abbr attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A brief note of what is in the cell, mostly for use by accessibility software.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>center</td>
<td>Center align the cell contents.</td>
</tr>
<tr>
<td>char</td>
<td>Align the text on the character identified with the <code>@char</code> attribute.</td>
</tr>
<tr>
<td>justify</td>
<td>Fully justify cell contents (right and left justification).</td>
</tr>
<tr>
<td>left</td>
<td>Left justify cell contents.</td>
</tr>
<tr>
<td>right</td>
<td>Right justify cell contents.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Simple textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.</td>
</tr>
</tbody>
</table>

### 8.5.6 @alt-title-type Type of Alternate Title

Reason for or purpose of an alternate title (for example, "toc" for a title used in a Table of Contents, "rt-running" for a right-running-head title for print).

In element `<alt-title>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A word or phrase describing the rationale for this version of the title, for example, &quot;right-running-head&quot;.</td>
</tr>
</tbody>
</table>

### 8.5.7 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>stack</td>
<td>The multiple subscripts or superscripts should be placed one above the other as compactly as possible.</td>
</tr>
<tr>
<td>stagger</td>
<td>The multiple subscripts or superscripts should be stretched out in a line.</td>
</tr>
</tbody>
</table>
8.5.8 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| Text, numbers, or special characters | Names the type of article, for example, “research-article”.

In elements `<article>` and `<sub-article>`, this attribute *may* be used if the element is used.

8.5.9 @assigning-authority Authority Responsible for an Identifier

Names the authority (such as CrossRef, GenBank, or PDB) that assigned the identifier or is responsible for the identifier

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| Text, numbers, or special characters | The name of the organization assigning the identifier.

In elements `<ext-link>` and `<pub-id>`, this attribute *may* be used if the element is used.

8.5.10 @authenticated Authenticated

The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.

In element `<contrib-id>`, this attribute will be assigned the value false by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>true</td>
<td>This contributor identifier has been marked by the issuing authority as authenticated.</td>
</tr>
<tr>
<td>false</td>
<td>No guarantee has been made about this contributor identifier.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of award, such as “contract” or “grant”.</td>
</tr>
</tbody>
</table>

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.)

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the conceptual axis or a comma-separated list of axis names.</td>
</tr>
</tbody>
</table>
8.5.13 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the position of the inline graphic.</td>
</tr>
</tbody>
</table>

8.5.14 @border Border (Frame) around a Table (NISO JATS table model)
Thickess, 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the border around the table.</td>
</tr>
</tbody>
</table>

8.5.15 @calendar Calendar
Name of the calendar used in naming a date such as a publication date, for example, “Gregorian”, “Japanese” (Emperor years), or “Thai Buddha”.

In this Tag Set, many of the date elements, such as `<pub-date>` and `<year>`, may take a `@calendar` attribute to indicate the calendar in which the date is given. For example, a calendar might be named as:

- Arabic-Hijrah
- Chinese
- English-Hijrah
- Gregorian
- Japanese
- Korean
- Persian
- ROC-official
- Thai-Buddha

Here is an example of a year and calendar in Pinyin:

Neither a date nor a calendar need be stated in English. The element that holds the `@calendar` attribute may also take an `@xml:lang` attribute to name the language or script of the element content. For example, here is a year from the traditional Chinese calendar, in which both the `@calendar` and the year itself are given in Chinese:

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, `<pub-date>`, `<string-date>`, and `<year>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name of the calendar used in the date, for example: “Gregorian”, “Japanese”, or “Chinese”</td>
</tr>
</tbody>
</table>

8.5.16 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the cell padding.</td>
</tr>
</tbody>
</table>

### 8.5.17 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the space between cells in a table.</td>
</tr>
</tbody>
</table>

### 8.5.18 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>When used in conjunction with <code>align=&quot;char&quot;</code>, the contents of the table entry are aligned relative to the character specified by this attribute.</td>
</tr>
</tbody>
</table>

### 8.5.19 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>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).</td>
</tr>
</tbody>
</table>

### 8.5.20 `@code-type` Type of Code

The type of this code, used to categorize or describe the code.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.</td>
</tr>
</tbody>
</table>

### 8.5.21 `@code-version` Code Version

Version of this program or code fragment

In element `<code>`, this attribute *may* be used if the element is used.
### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Version of the program (code) that is shown inside the <code>&lt;code&gt;</code> element, for example, “25.1 second patch”.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase that describes the role that the collaborators played in the publication, for example, “authors”.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>How many column widths this cell will span, for example, “3”.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names/describes the distinct function for the <code>&lt;named-content&gt;</code> 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”.</td>
</tr>
</tbody>
</table>

In elements `<abbrev>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<annotation>`, `<app>`, `<app-group>`, `<array>`, `<author-comment>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chem-struct>`, `<chem-struct-wrap>`, `<city>`, `<col>`, `<colgroup>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<compound-subject>`, `<compound-subject-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<corresp>`, `<country>`, `<data-title>`, `<date-in-citation>`, `<day>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<location-id>`, `<email>`, `<era>`, `<fax>`, `<fig-group>`, `<fixed-case>`, `<fn-group>`, `<fpage>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<isbn>`, `<issn>`, `<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>`, `<postal-code>`, `<prefix>`, `<price>`, `<publisher>`, `<rb>`, `<ref>`, `<ref-list>`, `<related-object>`, `<role>`, `<rt>`, `<ruby>`, `<season>`, `<self-uri>`, `<series>`,
text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-conf>, <string-date>, <string-name>, <subject>, <subtitle>, <suffix>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <tex-math>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <tr>, <trans-source>, <trans-title>, <trans-title-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <x>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

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.

In element <contrib-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase naming or describing the contribution, such as “author”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>This author (or other contributor) is not a corresponding author.</td>
</tr>
<tr>
<td>yes</td>
<td>This author (or other contributor) is a corresponding author.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>The number of objects being counted, for example, “5” for five tables or five figures.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of an object, element, structure</td>
<td>The object being counted, for example, “contributor” when counting the number of authors or “image” for the number of images.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An abbreviation for a country, typically using the ISO 3166-1 two-letter alphabetic codes, for example, “US” for the United States of America.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An abbreviation for a currency, typically using the ISO 4217 three-letter alphabetic codes, for example, “USD” for the United States Dollar.</td>
</tr>
</tbody>
</table>

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.
### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The contributor was living when the document was published.</td>
</tr>
<tr>
<td>yes</td>
<td>The contributor had died by the time the document was published.</td>
</tr>
</tbody>
</table>

In element `<contrib>`, this attribute `may` be used if the element is used.

### 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”).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A rough visual description of the appearance of the <code>&lt;private-char&gt;</code> character, for example, “Greek capital letter omega with tonos”</td>
</tr>
</tbody>
</table>

In element `<private-char>`, this attribute `may` be used if the element is used.

### 8.5.36 @designator Designator of the Edition
The edition number as an unadorned numeric or alphabetic value.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The numeral or alphabetic character that indicates the edition number</td>
<td>The straight unadorned edition number, for machine processing. Typically this is a number such as “4” or an alphabetic character such as “A”.</td>
</tr>
</tbody>
</table>

In elements `<edition>` and `<version>`, this attribute `may` be used if the element is used.

### 8.5.37 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”, “level12”, etc.</td>
</tr>
</tbody>
</table>

In element `<sec>`, this attribute `may` be used if the element is used.

### 8.5.38 @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.
### 8.5.39 @document-id-type Document Identifier Type

Type of document identifier (for example, a DOI or a publisher’s identifier) named in the @document-id attribute of the `<related-object>` element to identify a document.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An identifier for the document that contains the related object (&lt;related-object&gt;).</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The type of document identifier of the related object, for example, a DOI.</td>
<td>The type of document identifier named in the @document-id attribute for a <code>&lt;related-object&gt;</code> element. This attribute qualifies the @document-id attribute.</td>
</tr>
</tbody>
</table>

### 8.5.40 @document-type Document Type

Type of document being described by the `<related-object>` element.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of related object, for example, “article” for a journal article.</td>
</tr>
</tbody>
</table>

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

### 8.5.41 @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 1.1 (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The NISO JATS version 1.1 (ANSI NISO Z39.96-2015) of the Journal Archiving and Interchange Tag Set is being used.</td>
</tr>
</tbody>
</table>

### 8.5.42 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The value of the elocation identifier.</td>
</tr>
</tbody>
</table>

### 8.5.43 @end_date End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>This contributor did not participate equally with all other contributors.</td>
</tr>
<tr>
<td>yes</td>
<td>This contributor participated equally with all other contributors.</td>
</tr>
</tbody>
</table>

8.5.45 @executable Executable
Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

In element `<code>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The code cannot or should not be executed.</td>
</tr>
<tr>
<td>yes</td>
<td>The code is intended to be run.</td>
</tr>
</tbody>
</table>

8.5.46 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of link, for example, “ftp” or “uri”.</td>
</tr>
</tbody>
</table>

8.5.47 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of object shown in the figure, for example, “diagram”, “chart”, or “map”.</td>
</tr>
</tbody>
</table>

8.5.48 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>
8.5.49 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The offset of the character into a glyph table.</td>
</tr>
</tbody>
</table>

8.5.50 @fontname Font Name
Name of the font.

In element `<glyph-data>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A name for the font.</td>
</tr>
</tbody>
</table>

8.5.51 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A word</td>
<td>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.</td>
</tr>
</tbody>
</table>

8.5.52 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>above</td>
<td>Rule above only (top).</td>
</tr>
<tr>
<td>below</td>
<td>Rule below only (bottom).</td>
</tr>
<tr>
<td>border</td>
<td>Rules on all table rows and columns.</td>
</tr>
<tr>
<td>box</td>
<td>Rules on all 4 sides.</td>
</tr>
<tr>
<td>hside</td>
<td>Rules on horizontal sides only (topbot).</td>
</tr>
<tr>
<td>lhs</td>
<td>Left side rule only.</td>
</tr>
<tr>
<td>rhs</td>
<td>Right side rule only.</td>
</tr>
<tr>
<td>void</td>
<td>No border (none).</td>
</tr>
<tr>
<td>vside</td>
<td>Rules on vertical sides only (sides).</td>
</tr>
</tbody>
</table>

8.5.53 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>The pointing uses the ID/IDREF mechanism, using the <code>@glyph-data</code> attribute of the <code>&lt;glyph-ref&gt;</code> element to point to the <code>@id</code> attribute of an existing <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

8.5.54 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to (contains) a list of one or more IDs of rows and columns that supply header information.</td>
</tr>
</tbody>
</table>

8.5.55 `@id` Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In elements `<overline-start>`, `<target>`, and `<underline-start>`, this attribute `must` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An XML identifier (ID)</td>
<td>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.</td>
</tr>
</tbody>
</table>

In elements `<abbrev>`, `<abbrev-journal-title>`, `<abstract>`, `<access-date>`, `<ack>`, `<addr-line>`, `<address>`, `<aff>`, `<aff-alternatives>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<alt-title>`, `<alternatives>`, `<annotation>`, `<anonymous>`, `<app>`, `<app-group>`, `<array>`, `<article>`, `<article-categories>`, `<article-id>`, `<article-meta>`, `<attrib>`, `<author-comment>`, `<author-notes>`, `<award-group>`, `<award-id>`, `<back>`, `<bio>`, `<body>`, `<bold>`, `<boxed-text>`, `<break>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<citation-alternatives>`, `<city>`, `<code>`, `<col>`, `<colgroup>`, `<collab>`, `<collab-alternatives>`, `<comment>`, `<compound-kwd>`, `<compound-kwd-part>`, `<compound-subject>`, `<compound-subject-part>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib>`, `<contrib-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<corresp>`, `<count>`, `<country>`, `<counts>`, `<custom-meta>`, `<custom-meta-group>`, `<data-title>`, `<date>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-head>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elocation-id>`, `<email>`, `<equation-count>`, `<era>`, `<etal>`, `<ext-link>`, `<fax>`, `<fig>`, `<fig-count>`, `<fig-group>`, `<fixed-case>`, `<floats-group>`, `<fn>`, `<fn-group>`, `<fpage>`, `<front>`, `<front-stub>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<given-names>`, `<glossary>`, `<glyph-data>`, `<glyph-ref>`, `<gov>`, `<graphic>`, `<history>`, `<hr>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<institution-wrap>`, `<isbn>`, `<issn>`, `<issn-l>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-sponsor>`, `<issue-title>`, `<italic>`, `<journal-id>`, `<journal-meta>`, `<journal-subtitle>`, `<journal-title>`, `<journal-title-group>`, `<kwd>`, `<kwd-group>`, `<label>`, `<license>`. 
8.5.57 @institution-id-type Type of Institution Identifier
Type or source of the institution identifier, such as ISNI or Ringgold.

In element <institution-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type or source of the institution identifier, such as ISNI or Ringgold.</td>
</tr>
</tbody>
</table>
8.5.58 @iso-8601-date ISO-8601 Formatted Date
A machine-processable, ISO 8601 formatted date value (“YYYY-MM-DDThh:mm:ss”) for a JATS date-specific element, whether the date be specified as text, an ISO date, a partial date, or as any other date format. If the date given in the content of the element is in a non-Gregorian calendar, this attribute will hold the Gregorian calendar equivalent of that date.

In elements <access-date>, <conf-date>, <date>, <date-in-citation>, <pub-date>, <string-date>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 standard date format (“YYYY-MM-DDThh:mm:ss”) for the date given in the element, for example, “2015-07-15”.</td>
</tr>
</tbody>
</table>

8.5.59 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The number of the journal issue, such as “48”.</td>
</tr>
</tbody>
</table>

8.5.60 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A journal abbreviation or other journal identifier.</td>
</tr>
</tbody>
</table>

8.5.61 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”).</td>
</tr>
</tbody>
</table>
8.5.62 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The source of keywords. This may be an organization (such as &quot;IEEE&quot;) or the name of a thesaurus, subject index, or ontology (such as &quot;MESH&quot;).</td>
</tr>
</tbody>
</table>

8.5.63 @language Code Language

Programming or scripting language in which this code is written, e.g. "javascript", for code written in "Javascript 3.0". (The "3.0" is recorded in the @language-version attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The lower case name of the programming or scripting language</td>
</tr>
</tbody>
</table>

8.5.64 @language-version Code Language Version

Version of the language in which this code is written, e.g. "3.0", for code written in "Javascript 3.0". (The language name "javascript" is recorded in the @language attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The version of the language in the code sample, such as &quot;3.0&quot;, &quot;8A&quot;, etc.</td>
</tr>
</tbody>
</table>

8.5.65 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of license, for example, &quot;open-access&quot; for a license permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited; or &quot;ccc&quot; for a Copyright Clearance Center statement.</td>
</tr>
</tbody>
</table>

8.5.66 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of relationship between the related object and the current document.</td>
</tr>
</tbody>
</table>

### 8.5.67 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 8.5.68 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A word</td>
<td>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).</td>
</tr>
</tbody>
</table>

### 8.5.69 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific mime subtype (IANA).</td>
</tr>
</tbody>
</table>

### 8.5.70 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The appropriate mime type for the object.</td>
</tr>
</tbody>
</table>

### 8.5.71 @name Name (Private Character)

This attribute is used for use with `<private-char>`, to contain the unique name for the private character being defined.
In element `<private-char>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>For use with <code>&lt;private-char&gt;</code>, 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”).</td>
</tr>
</tbody>
</table>

### 8.5.72 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>eastern</td>
<td>The name will <strong>both</strong> be displayed and sorted/inverted with the family name preceding the given name.</td>
</tr>
<tr>
<td>given-only</td>
<td>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.</td>
</tr>
<tr>
<td>islensk</td>
<td>The name will <strong>both</strong> be displayed and sorted/inverted with the given name preceding the family name.</td>
</tr>
<tr>
<td>western</td>
<td>The name will be displayed with the given name preceding the family name, <strong>but</strong> will be sorted/inverted with the family name preceding the given name.</td>
</tr>
</tbody>
</table>

### 8.5.73 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaTeX</td>
<td>The content of the associated element will be in LaTeX.</td>
</tr>
<tr>
<td>TEX</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
<tr>
<td>TeX</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
<tr>
<td>tex</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
</tbody>
</table>

### 8.5.74 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The note type, if known, for example, “note-in-proof”.</td>
</tr>
</tbody>
</table>

### 8.5.75 `@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.
8.5.76 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The identifier of the text or graphic object for a <code>&lt;related-object&gt;</code> element.</td>
</tr>
</tbody>
</table>

8.5.77 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of the identifier, for example, “ID” for an XML attribute of type ID.</td>
</tr>
</tbody>
</table>

8.5.78 @orientation Orientation
Indicates whether an object (for example, a figure or table) should be positioned in a tall manner with the long edge vertical (“portrait”) or in a wide manner with the long edge horizontal (“landscape”).

In elements `<array>`, `<boxed-text>`, `<chem-struct-wrap>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `portrait` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>landscape</td>
<td>The object should be rotated by 90 degrees, so that the display is wide rather than tall.</td>
</tr>
<tr>
<td>portrait</td>
<td>The object should not be rotated by 90 degrees; the display will be taller than it is wide.</td>
</tr>
</tbody>
</table>

8.5.79 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”.</td>
</tr>
</tbody>
</table>

8.5.80 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>The role played by the person group in the creation/production of the</td>
</tr>
<tr>
<td>characters</td>
<td>article, for example, &quot;editors&quot;.</td>
</tr>
</tbody>
</table>

### 8.5.81 @platforms Platforms

Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word “name”, and multiple platform names will be separated by spaces.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>Platform on which the <code>&lt;code&gt;</code> is intended to run, for example, &quot;Mac OSX&quot;.</td>
</tr>
<tr>
<td>characters</td>
<td></td>
</tr>
</tbody>
</table>

### 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>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `float` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>anchor</td>
<td>The object must remain in its exact location in the text flow.</td>
</tr>
<tr>
<td>background</td>
<td>The object (typically an image) is used as background displayed visually “behind” the narrative text.</td>
</tr>
<tr>
<td>float</td>
<td>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.</td>
</tr>
<tr>
<td>margin</td>
<td>In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>The prefix word to be used for the list; for example, the word “Step” might be used to display a list numbered “Step1.”, “Step2.”, etc.</td>
</tr>
<tr>
<td>characters</td>
<td></td>
</tr>
</tbody>
</table>

### 8.5.84 @preformat-type Type of Preformatted Text

Type of content contained in the `<preformat>` element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

In element `<preformat>`, this attribute *may* be used if the element is used.
### 8.5.85 @product-type Type of Product

Category of product described in the element (for example, “book”, “software”, “article” “issue”, “website”, “film”, “hardware”).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A word or phrase that describes the content or names the type of content for the <code>&lt;preformat&gt;</code> element, for example, “poetry” for a formatted poem resembling a tree or “dialog” for a man-machine dialog.</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of product being reviewed, for example, “website” or “videogame”.</td>
</tr>
</tbody>
</table>

### 8.5.87 @publication-format Format of Publication

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

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

**For use in Dates:** In 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>`, `<isbn>`, `<issn>`, `<mixed-citation>`, `<nlm-citation>`, and `<pub-date>`, this attribute *may* be used if the element is used.
8.5.88 @publication-type Type of Referenced Publication

In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The cited format, for example, “print”.</td>
</tr>
</tbody>
</table>

8.5.89 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of publication, for example, “book”, “journal” (for a journal article), “patent”, or “data” (for a dataset, database, spreadsheet, et al.).</td>
</tr>
</tbody>
</table>

8.5.90 @pub-type Type of Publication
Deprecated: On the element <pub-date>, in the Archiving and Publishing Tag Sets, this @pub-type attribute is deprecated in favor of the @publication-format and @date-type attributes. In all Tag Sets, on the element <issn>, this @pub-type attribute is deprecated in favor of the @publication-format attribute (possibly with the @content-type attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

Definition: Deprecated pre-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 publication in print.

The pre-combination of format, medium, and event 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of print or electronic publication, for example, “epub” for electronic publication.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The reason for a milestone or information about an object that cannot be modeled using the regular hierarchy.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The element to which the reference points, for example, “fig” to indicate that the reference points to a figure (&lt;fig&gt;).</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The article type for the related article, for example, “addendum”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decimal integer</td>
<td>The number of dots per inch of the bitmap.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of response as described by the publisher, for example, “discussion”.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

In elements `<overline-end>` and `<underline-end>`, this attribute *must* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to one or more existing identifiers.</td>
</tr>
</tbody>
</table>

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 XHTML `rowspan` attribute.)

In elements `<td>` and `<th>`, this attribute will be assigned the value 1 by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A counting number</td>
<td>How many rows this cell will span vertically, for example, “3”.</td>
</tr>
</tbody>
</table>

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 XHTML `rules` attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Rules on all rows and columns.</td>
</tr>
<tr>
<td>cols</td>
<td>Rules between columns.</td>
</tr>
<tr>
<td>groups</td>
<td>Rules between groups.</td>
</tr>
<tr>
<td>none</td>
<td>No rules in table.</td>
</tr>
<tr>
<td>rows</td>
<td>Rules between rows.</td>
</tr>
</tbody>
</table>

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 XHTML `scope` attribute.)

In elements `<td>` and `<th>`, this attribute *may* be used if the element is used.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>col</td>
<td>Provides header information for the rest of a column.</td>
</tr>
<tr>
<td>colgroup</td>
<td>Provides header information for the rest of a column group (i.e., the remaining cells within the <code>&lt;colgroup&gt;</code> element).</td>
</tr>
<tr>
<td>row</td>
<td>Provides header information for the rest of a row.</td>
</tr>
<tr>
<td>rowgroup</td>
<td>Provides header information for the rest of a row group (i.e., the remaining cells of the current <code>&lt;thead&gt;</code>, <code>&lt;tfoot&gt;</code>, or <code>&lt;tbody&gt;</code>).</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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-make-up 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.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The identifier of the source for the <code>&lt;related-object&gt;</code>.</td>
</tr>
</tbody>
</table>

### 8.5.103 @source-id-type Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher’s identifier) for a `<related-object>`.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type of object that is the source of the related object (<code>&lt;related-object&gt;</code>), for example, “book”.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A counting number</td>
<td>How many columns will have the same attributes, for example, “3”.</td>
</tr>
</tbody>
</table>

### 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>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<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>`, `<city>`, `<code>`, `<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>`, `<data-title>`, `<date>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elocation-id>`, `<email>`, `<era>`, `<etal>`, `<ext-link>`, `<fax>`, `<fig>`, `<fig-group>`, `<fixed-case>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issn-l>`, `<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>`, `<postal-code>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<private-char>`, `<product>`, `<pub-id>`, `<publisher-loc>`, `<publisher-name>`, `<rb>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<response>`, `<role>`, `<roman>`, `<rt>`, `<ruby>`, `<sans-serif>`, `<sc>`, `<season>`, `<sect>`, `<self-uri>`, `<series>`, `<series-text>`, `<series-title>`, `<sig>`, `<sig-block>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<state>`, `<statement>`, `<std>`, `<std-organization>`, `<strike>`, `<string-conf>`, `<string-date>`, `<string-name>`, `<styled-content>`, `<sub>`, `<sub-article>`, `<subj-group>`, `<subtitle>`, `<suffix>`, `<sup>`, `<supplement>`, `<supplementary-material>`, `<table>`, `<table-wrap>`, `<table-wrap-group>`, `<target>`, `<term>`, `<tex-math>`, `<textual-form>`, `<time-stamp>`, `<title>`, `<trans-abstract>`, `<trans-source>`, `<trans-subtitle>`, `<trans-title>`, `<trans-title-group>`, `<underline>`, `<underline-end>`, `<underline-start>`, `<unstructured-kwd-group>`, `<uri>`, `<verse-group>`, `<verse-line>`, `<version>`, `<volume>`, `<volume-id>`, `<volume-issue-group>`, `<volume-series>`, `<x>`, `<xref>`, and `<year>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific distinction in the applicability of a particular element, for example, &quot;print-only&quot;.</td>
</tr>
</tbody>
</table>

### 8.5.107 `@start_date` Start Date

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In elements `<ali:free_to_read>` and `<ali:license_ref>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document starts being free-to-read or begins the given license.</td>
</tr>
</tbody>
</table>
8.5.108 @style Style (NISO JATS table model; MathML Tag Set)

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), 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

In elements <caption>, <col>, <colgroup>, <table>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the markup style for one of the elements within a table or for the entire table.</td>
</tr>
</tbody>
</table>

In element <styled-content>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the inline markup style for the element.</td>
</tr>
</tbody>
</table>

8.5.109 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name or description for the stylistic type, for example, “green background”.</td>
</tr>
</tbody>
</table>

8.5.110 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type of subject.</td>
</tr>
</tbody>
</table>

8.5.111 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Textual description of the contents of a table, intended to be read to the audience for the table.</td>
</tr>
</tbody>
</table>

8.5.112 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type or reason for the supplement, for example, “conference” or “issue”.</td>
</tr>
</tbody>
</table>

8.5.113 `@symbol` Symbol

Stores the symbol (for example, an asterisk, numeral, section mark) that was displayed in the original document to identify a specific footnote, if this symbol is to be preserved.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The symbol used to mark a footnote, such as a dagger “†”.</td>
</tr>
</tbody>
</table>

8.5.114 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names/describes the rationale for designating a portion of text for cross-reference.</td>
</tr>
</tbody>
</table>

8.5.115 `@toggle` Toggle Switch

Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element `<italic>`, this attribute will be assigned the value `yes` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In element `<roman>`, this attribute will be assigned the value `no` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the same emphasis, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In elements `<bold>`, `<monospace>`, `<overline>`, `<sans-serif>`, `<sc>`, `<strike>`, `<styled-content>`, and `<underline>`, this attribute *may* be used if the element is used.
### 8.5.116 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The style of underlining requested; for example, “double” would mean underlined by two rules, very close together.</td>
</tr>
</tbody>
</table>
8.5.120 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

8.5.121 @width Width (NISO JATS table model)
This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements <col>, <colgroup>, and <table>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Within the NISO JATS Table model (&lt;table&gt;), 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.</td>
</tr>
</tbody>
</table>

8.5.122 @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>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>onLoad</td>
<td>An application should retrieve the link at the same time a user obtains the initial document load.</td>
</tr>
<tr>
<td>onRequest</td>
<td>An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.</td>
</tr>
<tr>
<td>other</td>
<td>The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
</tbody>
</table>

8.5.123 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (a URL) to a resource.</td>
</tr>
</tbody>
</table>

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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (which may be a URL) to a resource.</td>
</tr>
</tbody>
</table>

### 8.5.124 `@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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The URI of a resource that describes the role, reason, or rationale for the link.</td>
</tr>
</tbody>
</table>

### 8.5.125 `@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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>embed</td>
<td>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.</td>
</tr>
<tr>
<td>new</td>
<td>The link should be displayed as a new, separate window, frame, pane, or other presentation context.</td>
</tr>
</tbody>
</table>
### 8.5.126 @xlink:title Title of the Link

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the display mechanism.</td>
</tr>
<tr>
<td>other</td>
<td>The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the display mechanism.</td>
</tr>
<tr>
<td>replace</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 8.5.127 @xlink:type Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word “simple”, which means that the link is a simple, one-ended link.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple</td>
<td>The link is an XML simple (one-ended) link.</td>
</tr>
</tbody>
</table>

### 8.5.128 @xml:base Base

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an @xml:base of "http://jats.nlm.nih.gov/", a URI inside the document of "publishing/rationale.html" would be processed as if it were "http://jats.nlm.nih.gov/publishing/rationale.html". Values of @xml:base are inherited; meaning that if there is an @xml:base on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple</td>
<td>The link is an XML simple (one-ended) link.</td>
</tr>
</tbody>
</table>
<author-notes>, <award-group>, <award-id>, <back>, <bio>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <compound-subject>, <compound-subject-part>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib>, <contrib-group>, <contrib-id>, <copyright-holder>, <copyright-statement>, <copyright-year>, <corresp>, <count>, <country>, <counts>, <custom-meta>, <custom-meta-group>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <elocation-id>, <email>, <equation-count>, <era>, <etal>, <ext-link>, <fax>, <fig>, <fig-count>, <fig-group>, <fixed-case>, <floats-group>, <fn>, <fn-group>, <fpage>, <front>, <front-stub>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <history>, <hr>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <institution-id>, <institute-wrap>, <isbn>, <issn>, <issn-l>, <issue>, <issue-id>, <issue-part>, <issue-sponsor>, <issue-title>, <italic>, <journal-id>, <journal-meta>, <journal-subtitle>, <journal-title>, <journal-title-group>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <meta-name>, <meta-value>, <milestone-end>, <milestone-start>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <named-kwd>, <nlm-citation>, <note>, <notes>, <object-id>, <on-behalf-of>, <open-access>, <overline>, <overline-end>, <overline-start>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-date>, <pub-id>, <publisher>, <publisher-loc>, <publisher-name>, <rb>, <ref>, <ref-count>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <roman>, <rp>, <rt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <sec-meta>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-conf>, <string-date>, <string-name>, <styled-content>, <sub>, <sub-article>, <subj-group>, <subject>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <surname>, <table>, <table-count>, <table-wrap>, <table-wrap-foot>, <table-wrap-group>, <target>, <tbody>, <td>, <term>, <term-head>, <text-math>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-abstract>, <trans-source>, <trans-subtitle>, <trans-title>, <trans-title-group>, <underline>, <underline-end>, <underline-start>, <unstructured-kwd-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <word-count>, <x>, <xref>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The base URI</td>
</tr>
</tbody>
</table>
8.5.129 `@xml:lang` Language

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

The value of this attribute must conform to IETF RFC 5646 (http://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "fr" (French), "en" (English), "de" (German), or "zh" (Chinese) is sufficient. These values are NOT case sensitive, but current best practice uses all lower case. In addition to the primary language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: http://www.iana.org/assignments/language-subtag-registry.

---

In element `<article>`, this attribute will be assigned the value `en` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>

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>`, `<author-group>`, `<award-id>`, `<bio>`, `<boxed-text>`, `<caption>`, `<chapter-title>`, `<chem-struct-wrap>`, `<city>`, `<code>`, `<collab>`, `<comment>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-num>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<corresp>`, `<country>`, `<custom-meta>`, `<data-title>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<email>`, `<era>`, `<etal>`, `<ext-link>`, `<fig>`, `<fig-group>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-sponsor>`, `<issue-title>`, `<journal-id>`, `<journal-subtitle>`, `<journal-title>`, `<kwgroup>`, `<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>`, `<postal-code>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<product>`, `<pub-date>`, `<publisher-loc>`, `<publisher-name>`, `<rb>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<response>`, `<role>`, `<rt>`, `<season>`, `<sec>`, `<self-url>`, `<series>`, `<series-text>`, `<series-title>`, `<sig>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<state>`, `<statement>`, `<std>`, `<std-organization>`, `<string-conf>`, `<string-date>`, `<string-name>`, `<styled-content>`, `<sub-article>`, `<subj-group>`, `<subtitle>`, `<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-kwgroup>`, `<uri>`, `<verse-group>`, `<verse-line>`, `<version>`, `<volume>`, `<volume-id>`, `<volume-issue-group>`, `<volume-series>`, `<x>`, `<xref>`, and `<year>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>
8.5.130 @xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)
This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO Access License and Indicators) elements. All namespace prefixes must be associated with a URL, and the prefix “ali” has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices recommendation.

In elements <ali:free_to_read>, <ali:license_ref>, and <article>, this attribute must have the value http://www.niso.org/schemas/ali/1.0/ (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.niso.org/schemas/ali/1.0/">http://www.niso.org/schemas/ali/1.0/</a></td>
<td>The URI named in the NISO Access License and Indicators for the ALI elements.</td>
</tr>
</tbody>
</table>

8.5.131 @xmlns:mml MathML Namespace Declaration
This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix “mml” has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same URL is the same for both MathML 2.0 and MathML 3.0.

In elements <article> and <mml:math>, this attribute must have the value http://www.w3.org/1998/Math/MathML (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1998/Math/MathML">http://www.w3.org/1998/Math/MathML</a></td>
<td>The prefix “mml” has been set to the URL for the W3C MathML Tag Set.</td>
</tr>
</tbody>
</table>

8.5.132 @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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1999/xlink">http://www.w3.org/1999/xlink</a></td>
<td>The prefix “xlink” has been set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>

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>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1999/xlink">http://www.w3.org/1999/xlink</a></td>
<td>When this attribute is used, the prefix “xlink” should be set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>

8.5.133 @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 @xsi_schemaLocation attribute an included vocabulary requires. 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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/2001/XMLSchema-instance">http://www.w3.org/2001/XMLSchema-instance</a></td>
<td>The prefix “xs:i” has been set to the URL for W3C XML Schema.</td>
</tr>
</tbody>
</table>

### 8.5.134 `@xml:space` Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements `<code>`, `<glyph-data>`, `<preformat>`, and `<x>`, this attribute must have the value `preserve` (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>preserve</td>
<td>White space should be preserved. (This value is fixed and cannot be changed in a document.)</td>
</tr>
</tbody>
</table>

### 8.5.135 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number</td>
<td>An integer number of pixels, for example, “45”, that is the number of pixels in each row of the bitmap of the <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

### 8.5.136 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The number of rows (for example, “25”) used to define the glyph in a <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

## 9 Journal Publishing Tag Set, version 1.1

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

Content model:
Any combination of:
· Text, numbers, or special characters
· <def> Definition List: Definition

9.4.2 <abbrev-journal-title> Abbreviated Journal Title
Short form of the title of the journal in which an article is published.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.3 <abstract> Abstract
Summarized description of the content of a document or document component.
Attributes:

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

Content model:

The following, in order:

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

9.4.4 <access-date> Access Date for Cited Work

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

Attributes:

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

Content model:

Text, numbers, or special characters, zero or more

9.4.5 <ack> Acknowledgments

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

Attributes:

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

Content model:

The following, in order:

- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- <p> Paragraph, zero or more
- <sec> Section, zero or more
- <ref-list> Reference List (Bibliographic), zero or more

9.4.6 <addr-line> Address Line

One physical or logical line of an address.

Attributes:

- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
9.4.7 <address> Address/Contact Information

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

Attributes:

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

Content model:

Any combination of:

• Address Elements
  • <addr-line> Address Line
  • <city> City
  • <country> Country: in an Address
  • <fax> Fax Number: in an Address
  • <institution> Institution Name: in an Address
  • <institution-wrap> Institution Wrapper
  • <phone> Phone Number: in an Address
  • <postal-code> Postal Code
9.4.8 <aff> Affiliation

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

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

Content model:
Any combination of:
- Address Elements
  - <addr-line> Address Line
  - <city> City
  - <country> Country: in an Address
  - <fax> Fax Number: in an Address
  - <institution> Institution Name: in an Address
  - <institution-wrap> Institution Wrapper
  - <phone> Phone Number: in an Address
  - <postal-code> Postal Code
- <state> State or Province
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <break> Line Break
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospaced Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <label> Label (of an Equation, Figure, Reference, etc.)
- <fn> Footnote
- <target> Target of an Internal Link
- <xref> X (cross) Reference
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
9.4.9 `<aff-alternatives>` Affiliation Alternatives

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

Attributes:
- `@id` Document Internal Identifier
- `@xml:base` Base

Content model:

- `<aff>` Affiliation, one or more

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

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

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

Content model:

This is an EMTPY element

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

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

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

Content model:

Text, numbers, or special characters

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

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

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

Content model:

Text, numbers, or special characters

9.4.13 `<alt-title>` Alternate Title

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

Attributes:
- `@alt-title-type` Type of Alternate Title
9.4.14 <alternatives> Alternatives For Processing

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

Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:
One or more of any of:
• <array> Array (Simple Tabulation)
• <chem-struct> Chemical Structure (Display)
• <code> Code
• <graphic> Graphic
• Inline Display Elements
  ° <inline-graphic> Graphic, Inline
  ° <private-char> Private Character (Custom or Unicode)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• <media> Media Object
• <preformat> Preformatted Text
• <supplementary-material> Supplementary Material Metadata
• <table> Table (NISO JATS table model)
• <textual-form> Textual Form
• Math Elements
  ° <tex-math> TeX Math Equation
  ° <mml:math> Math (MathML Tag Set)

9.4.15 <annotation> Annotation in a Citation
Commentary, summary, review, or similar non-bibliographic information concerning the cited work.

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

Content model:
Any one of:
• <p> Paragraph, one or more

9.4.16 <anonymous> Anonymous
Placeholder for the name of a contributor where the actual name is unknown or not disclosed.

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

Content model:
This is an EMPTY element

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

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

Content model:
The following, in order:
• The following, in order:
  ° <sec-meta> Section Metadata, zero or one
9.4.18 <app-group> Appendix Group

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

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- Any combination of:
9.4.19 <array> Array (Simple Tabulation)
Tabular arrangement of text in the narrative flow of the document. Unlike a <table-wrap>, an array does not contain a label, title, caption, or table headings (column heads).

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

Content model:
The following, in order:
• Any combination of:
  ° Accessibility Elements
    • <alt-text> Alternate Text Name (for a figure, etc.)
    • <long-desc> Long Description
  ° Linking Elements
    • <email> Email Address
    • <ext-link> External Link
    • <uri> Uniform Resource Identifier (URI)
• Any one of:
  ° Any combination of:
    • <alternatives> Alternatives For Processing
9.4.20 <article> Article

A journal article.

Attributes:
@article-type Type of Article
@dtd-version Version of the Tag Set (DTD)
@id Document Internal Identifier
@specific-use Specific Use
+xml:base Base
+xml:lang Language
+xml:ns:ali NISO ALI Namespace (NISO Access License and Indicators)
+xml:ns:mml MathML Namespace Declaration
+xml:ns:xlink XLink Namespace Declaration
+xml:ns:xsi XML Schema Namespace Declaration

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

9.4.21 <article-categories> Article Grouping Data

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

Attributes:
@id Document Internal Identifier
+xml:base Base

Content model:
The following, in order:
• <subj-group> Subject Group, zero or more
• <series-title> Series Title, zero or more
• <series-text> Series Text: Header Text to Describe, zero or more

9.4.22 <article-id> Article Identifier

Unique external identifier assigned to an article.

Attributes:
@id Document Internal Identifier
@pub-id-type Type of Publication Identifier
@specific-use Specific Use
+xml:base Base

Content model:
Text, numbers, or special characters
9.4.23 <article-meta> Article Metadata

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <article-id> Article Identifier, zero or more
- <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
- <pub-date> Publication Date, one or more
- <volume> Volume Number, zero or more
- <volume-id> Volume Identifier, zero or more
- <volume-series> Volume Series, zero or one
- <issue> Issue Number, zero or more
- <issue-id> Issue Identifier, zero or more
- <issue-title> Issue Title, zero or more
- <issue-sponsor> Issue Sponsor, zero or more
- <issue-part> Issue Part, zero or one
- <volume-issue-group> Volume Issue Grouping, zero or more
- <isbn> ISBN, zero or more
- <supplement> Supplement Information, zero or one
- Optionally any one of:
  - The following, in order:
    - <fpage> First Page
    - <lpage> Last Page, zero or one
    - <page-range> Page Ranges, zero or one
    - <elocation-id> Electronic Location Identifier
- Any combination of:
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <product> Product Information
  - <supplementary-material> Supplementary Material Metadata
- <history> History: Document History, zero or one
- <permissions> Permissions, zero or one
- <self-uri> URI for This Same Article Online, zero or more
- Any combination of:
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <abstract> Abstract, zero or more
  - <trans-abstract> Translated Abstract, zero or more
  - <kwds> 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

9.4.24 <article-title> Article Title

Full title of an article.
Attributes:

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

Content model:

Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 Tag Set)
• Other Inline Elements
  ◦ <abbr> 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
  ◦ <break> Line Break

9.4.25 <attrib> Attribution

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

Attributes:

@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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 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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript

9.4.26 `<author-comment>` Author Comment
Textual material associated with a contributor.

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

Content model:
The following, in order:
- `<title>` Title, zero or one
- `<p>` Paragraph, one or more
9.4.27 <author-notes> Author Note Group

Container element for notes about the article’s contributors.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- One or more of any of:
  - <corresp> Correspondence Information
  - <fn> Footnote
  - <p> Paragraph

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

Content model:
The following, in order:
- <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

9.4.29 <award-id> Award Identifier

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
9.4.30 <back> Back Matter

Material published with an article but following the narrative flow.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

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

9.4.31 <bio> Biography

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

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @rid Reference to an Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
9.4.32 <body> Body of the Document

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

Attributes:

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

Content model:

The following, in order:

• Any combination of:
  ◦ Paragraph-level Display Elements
    ▪ <address> Address/Contact Information
    ▪ <array> Array (Simple Tabulation)
    ▪ <boxed-text> Boxed Text
    ▪ <chem-struct-wrap> Chemical Structure Wrapper
    ▪ <code> Code
    ▪ <fig> Figure
    ▪ <fig-group> Figure Group
    ▪ <graphic> Graphic
    ▪ <media> Media Object
    ▪ <preformat> Preformatted Text
    ▪ <supplementary-material> Supplementary Material Metadata
    ▪ <table-wrap> Table Wrapper
    ▪ <table-wrap-group> Table Wrapper Group
  ◦ <alternatives> Alternatives For Processing
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
  ◦ Lists
    ▪ <def-list> Definition List
    ▪ <list> List
  ◦ Math Elements
    ▪ <tex-math> TeX Math Equation
    ▪ <mml:math> Math (MathML Tag Set)
  ◦ <p> Paragraph
  ◦ Related Material Elements
    ▪ <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)
9.4.33 <bold> Bold

Used to mark text that should appear in bold face.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
9.4.34 <boxed-text> Boxed Text

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

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

Content model:
The following, in order:
• <object-id> Object Identifier, zero or more
• <sec-meta> Section Metadata, zero or one
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <caption> Caption of a Figure, Table, etc., zero or one
• Any combination of:
  • Paragraph-level Display Elements
  • <address> Address/Contact Information
  • <array> Array (Simple Tabulation)
  • <boxed-text> Boxed Text
  • <chem-struct-wrap> Chemical Structure Wrapper
  • <code> Code
  • <fig> Figure
  • <fig-group> Figure Group
  • <graphic> Graphic
  • <media> Media Object
  • <preformat> Preformatted Text
  • <supplementary-material> Supplementary Material Metadata
  • <table-wrap> Table Wrapper
  • <table-wrap-group> Table Wrapper Group
• <alternatives> Alternatives For Processing
• <disp-formula> Formula, Display
9.4.35 ‹break› Line Break
An explicit line break in the text.

Attributes:
  † id Document Internal Identifier
  † xml:base Base

Content model:
This is an EMTPY element

9.4.36 ‹caption› Caption of a Figure, Table, etc.
Container element for the textual description that is associated with an object (for example, with a ‹fig› or ‹table-wrap›).

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

Content model:
The following, in order:
  † ‹title› Title, zero or one
  † ‹p› Paragraph, zero or more

9.4.37 ‹chapter-title› Chapter Title in a Citation
Title of a cited book chapter.

Attributes:
  † id Document Internal Identifier
  † specific-use Specific Use
  † xml:base Base
  † xml:lang Language
9.4.38 <chem-struct> Chemical Structure (Display)

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

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
  ° <alt-text> Alternate Text Name (for a figure, etc.)
  ° <long-desc> Long Description
• Linking Elements
  ° <email> Email Address
  ° <ext-link> External Link
  ° <uri> Uniform Resource Identifier (URI)
• <break> Line Break
• Emphasis Elements
  ° <bold> Bold
  ° <fixed-case> Fixed Case
  ° <italic> Italic
  ° <monospace> Monospace Text (Typewriter Text)
  ° <overline> Overline
  ° <roman> Roman
9.4.39 <chem-struct-wrap> Chemical Structure Wrapper

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

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

Content model:
- <object-id> Object Identifier, zero or more
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <caption> Caption of a Figure, Table, etc., zero or one
- <abstract> Abstract, zero or more
- <kwds-group> Keyword Group, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> Alternate Text Name (for a figure, etc.)
    - <long-desc> Long Description
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
- One or more of any of:
  - <alternatives> Alternatives For Processing
  - <chem-struct> Chemical Structure (Display)
  - <code> Code
  - <graphic> Graphic
9.4.40 <citation-alternatives> Citation Alternatives

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

Attributes:
- @id Document Internal Identifier
- xml:base Base

Content model:
One or more of any of:
- <element-citation> Element Citation
- <mixed-citation> Mixed Citation
- <nlm-citation> NLM Citation

9.4.41 <city> City

The name of a city.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.42 <code> Code

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
9.4.43 <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 Document Internal Identifier
- @span Span (NISO JATS table model)
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @width Width (NISO JATS table model)
- @xml:base Base

Content model:
This is an EMPTY element

9.4.44 <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 colgroup element.)

Attributes:
- @align Horizontal Alignment (NISO JATS table model)
- @char Table Cell Alignment Character (NISO JATS table model)
- @charoff Table Character Offset (NISO JATS table model)
- @content-type Type of Content
- @id Document Internal Identifier
9.4.45 `<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` Document Internal Identifier
- `@specific-use` Specific Use
- `@symbol` Symbol
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link
- `@xml:base` Base
- `@xml:lang` Language
- `@xmlns:xlink` XLink Namespace Declaration

Content model:

Any combination of:

- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
- Address Elements
  - `<addr-line>` Address Line
  - `<city>` City
  - `<country>` Country: in an Address
9.4.46 <collab-alternatives> Collaboration Alternatives
Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.

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

Content model:
<collab> Collaborative (Group) Author, one or more

9.4.47 <comment> Comment in a Citation
Container element for unstructured text within a bibliographic reference.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  • <related-article> Related Article Information
  • <related-object> Related Object Information
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
9.4.48 `<compound-kwd>` Compound Keyword
Wrapper element for multi-part keywords (for example, a code and its meaning).

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

Content model:
- `<compound-kwd-part>` Compound Keyword Part, one or more

9.4.49 `<compound-kwd-part>` Compound Keyword Part
Individual component of a multi-part keyword (for example, a code, the code’s meaning).

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Emphasis Elements
    - `<bold>` Bold
    - `<fixed-case>` Fixed Case
    - `<italic>` Italic
    - `<monospace>` Monospace Text (Typewriter Text)
    - `<overline>` Overline
    - `<roman>` Roman
    - `<sans-serif>` Sans Serif
    - `<sc>` Small Caps
    - `<strike>` Strike Through
9.4.50 `<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` Document Internal Identifier
- `@xml:base` Base

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

9.4.51 `<compound-subject-part>` Compound Subject Part Name

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

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

**Content model:**
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<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
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
• Baseline Change Elements
  ◦ `<sub>` Subscript
  ◦ `<sup>` Superscript

### 9.4.52 `<conf-acronym>` Conference Acronym
Short, popular, or jargon name for a conference (for example, “Extreme” for Extreme Markup Languages, “SIGGRAPH” for Special Interest Group on Computer Graphics).

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

**Content model:**
- Text, numbers, or special characters, zero or more

### 9.4.53 `<conf-date>` Conference Date
Date(s) on which a conference was held.

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

**Content model:**
- Text, numbers, or special characters, zero or more

### 9.4.54 `<conf-loc>` Conference Location
Physical location(s) of a conference (for example, city, country, campus, organization location).

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

**Content model:**
- Any combination of:
  - Text, numbers, or special characters
  - Address Elements
    - `<addr-line>` Address Line
    - `<city>` City
    - `<country>` Country in an Address
    - `<fax>` Fax Number in an Address
    - `<institution>` Institution Name in an Address
    - `<institution-wrap>` Institution Wrapper
    - `<phone>` Phone Number in an Address
    - `<postal-code>` Postal Code
    - `<state>` State or Province

### 9.4.55 `<conf-name>` Conference Name
Full name of a conference, including any qualifiers such as “43rd Annual”.

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Attributes:

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

Content model:

- Text, numbers, or special characters, zero or more

### 9.4.56 `<conf-num>` Conference Number

Sequential number of a conference.

Attributes:

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

Content model:

- Text, numbers, or special characters, zero or more

### 9.4.57 `<conf-sponsor>` Conference Sponsor

One organization identified as a sponsor of a conference.

Attributes:

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

Content model:

- Any combination of:
  - Text, numbers, or special characters
  - `<institution>` Institution Name: in an Address
  - `<institution-wrap>` Institution Wrapper

### 9.4.58 `<conf-theme>` Conference Theme

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

Attributes:

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

Content model:

- Any combination of:
  - Text, numbers, or special characters
  - Emphasis Elements
    - `<bold>` Bold
    - `<fixed-case>` Fixed Case
    - `<italic>` Italic
    - `<monospace>` Monospace Text (Typewriter Text)
    - `<overline>` Overline
    - `<roman>` Roman
    - `<sans-serif>` Sans Serif
    - `<sc>` Small Caps
9.4.59 `<conference>` Conference Information
Container element to contain information about a single conference and its proceedings.

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

Content model:
The following, in order:
- `<conf-date>` Conference Date
- One or more of any of:
  - `<conf-name>` Conference Name
    - `<conf-acronym>` Conference Acronym
  - `<conf-num>` Conference Number, zero or one
  - `<conf-loc>` Conference Location, zero or one
  - `<conf-sponsor>` Conference Sponsor, zero or more
  - `<conf-theme>` Conference Theme, zero or one

9.4.60 `<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` Document Internal Identifier
- `@rid` Reference to an Identifier
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
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

9.4.61 `<contrib-group>` Contributor Group
Container element for one or more contributors and information about those contributors.

Attributes:

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

Content model:
The following, in order:

- `<contrib>` Contributor, one or more

- Any combination of:
  - `<address>` Address/Contact Information
  - `<aff>` Affiliation
  - `<aff-alternatives>` Affiliation Alternatives
  - `<author-comment>` Author Comment
  - `<bio>` Biography
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<on-behalf-of>` On Behalf of
  - `<role>` Role or Function Title of Contributor
  - `<xref>` X (cross) Reference
9.4.62 <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 (Japan Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:
- @authenticated Authenticated
- @content-type Type of Content
- @contrib-id-type Contributor Identifier Type
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Text, numbers, or special characters

9.4.63 <copyright-holder> Copyright Holder

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- <institution> Institution Name: in an Address
- <institution-wrap> Institution Wrapper
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

9.4.64 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
9.4.65 <copyright-year> Copyright Year
The year of copyright.

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

Content model:
Text, numbers, or special characters

9.4.66 <corresp> Correspondence Information
Information concerning how and with whom to correspond about an article.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Address Elements
  - <addr-line> Address Line
  - <city> City
  - <country> Country: in an Address
  - <fax> Fax Number: in an Address
  - <institution> Institution Name: in an Address
  - <institution-wrap> Institution Wrapper
  - <phone> Phone Number: in an Address
  - <postal-code> Postal Code
  - <state> State or Province
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
9.4.67 <code>Count</code> Count

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

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

Content model:
This is an EMTPY element

9.4.68 <code>Country</code> Country: in an Address

Country name used within an address.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.69 <code>Counts</code> Counts

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <code>Count</code>, zero or more
- <code>Figure Count</code>, zero or one
- <code>Table Count</code>, zero or one
- <code>Equation Count</code>, zero or one
- <code>Reference Count</code>, zero or one
- <code>Page Count</code>, zero or one
- <code>Word Count</code>, zero or one

9.4.70 <code>Custom-Meta</code> Custom Metadata

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

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
Actuating the Link
Href (Linking Mechanism)
Role of the Link
Showing the Link
Title of the Link
Type of Link
Base
Language
XLink Namespace Declaration

Content model:
The following, in order:
• <meta-name> Metadata Data Name for Custom Metadata
• <meta-value> Metadata Data Value for Custom Metadata

9.4.71 <custom-meta-group> Custom Metadata Group
Container element for metadata not otherwise defined in the Tag Suite.

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

Content model:
<custom-meta> Custom Metadata, one or more

9.4.72 <data-title> Data Title
The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
9.4.73 <date> Date
Container element for the parts of a single calendar date.

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

Content model:
The following, in order:
- Optionally any one of:
  - The following, in order:
    - <day> Day, zero or one
    - <month> Month, zero or one
    - <season> Season
  - <year> Year
  - <era> Era of Time, zero or one

9.4.74 <date-in-citation> Date within a Citation
Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- <day> Day
- <era> Era of Time
- <month> Month
- <season> Season
- <year> Year

9.4.75 <day> Day
Numeric, two-digit value of the day of the month.

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

Content model:
Text, numbers, or special characters

9.4.76 <def> Definition List: Definition
Definition, explanation, or expansion of a word, phrase, or abbreviation.
9.4.77 <def-head> Definition List: Definition Head

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

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

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

---

9.4.77 <def-head> Definition List: Definition Head

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

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

Content model:
  Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
    - <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 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
  - Baseline Change Elements
    - <sub> Subscript
9.4.78 `<def-item>` Definition List: Definition Item

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

Attributes:

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

Content model:

The following, in order:
- `<term>` Definition List: Term
- `<def>` Definition List: Definition, zero or more

9.4.79 `<def-list>` Definition List

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

Attributes:

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

Content model:

The following, in order:
- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- `<title>` Title, zero or one
- `<term-head>` Definition List: Term Head, zero or one
- `<def-head>` Definition List: Definition Head, zero or one
- `<def-item>` Definition List: Definition Item, zero or more
- `<def-list>` Definition List, zero or more

9.4.80 `<degrees>` Degree(s)

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

Attributes:

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

Content model:

Text, numbers, or special characters, zero or more

9.4.81 `<disp-formula>` Formula, Display

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

Attributes:

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

Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
  ◦ `<alt-text>` Alternate Text Name (for a figure, etc.)
  ◦ `<long-desc>` Long Description
• `<abstract>` Abstract
• Linking Elements
  ◦ `<email>` Email Address
  ◦ `<ext-link>` External Link
  ◦ `<uri>` Uniform Resource Identifier (URI)
• `<break>` Line Break
• Emphasis Elements
  ◦ `<bold>` Bold
  ◦ `<fixed-case>` Fixed Case
  ◦ `<italic>` Italic
  ◦ `<monospace>` Monospace Text (Typewriter Text)
  ◦ `<overline>` Overline
  ◦ `<roman>` Roman
  ◦ `<sans-serif>` Sans Serif
  ◦ `<sc>` Small Caps
  ◦ `<strike>` Strike Through
  ◦ `<underline>` Underline
  ◦ `<ruby>` Ruby Annotation Wrapper
• Inline Display Elements
  ◦ `<inline-graphic>` Graphic, Inline
  ◦ `<private-char>` Private Character (Custom or Unicode)
• `<chem-struct>` Chemical Structure (Display)
• `<inline-formula>` Formula, Inline
• `<kwd-group>` Keyword Group
• `<label>` Label (of an Equation, Figure, Reference, etc.)
• `<named-content>` Named Special (Subject) Content
• `<styled-content>` Styled Special (Subject) Content
• Math Elements
  ◦ `<tex-math>` TeX Math Equation
  ◦ `<mml:math>` Math (MathML Tag Set)
• `<alternatives>` Alternatives For Processing
• `<array>` Array (Simple Tabulation)
• `<code>` Code
• `<graphic>` Graphic
• `<media>` Media Object
• `<preformat>` Preformatted Text
• Baseline Change Elements
  ◦ `<sub>` Subscript
  ◦ `<sup>` Superscript

9.4.82 `<disp-formula-group>` Formula, Display Group

Container element for equations or other mathematical expressions.

Attributes:

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

Content model:

The following, in order:
• `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
9.4.83 `<disp-quote>` Quote, Displayed

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

Attributes:

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

Content model:

The following, in order:

- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- `<title>` Title, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<address>` Address/Contact Information
    - `<array>` Array (Simple Tabulation)
    - `<boxed-text>` Boxed Text
    - `<chem-struct-wrap>` Chemical Structure Wrapper
    - `<code>` Code
    - `<fig>` Figure
    - `<fig-group>` Figure Group
    - `<graphic>` Graphic
    - `<media>` Media Object
    - `<preformat>` Preformatted Text
    - `<supplementary-material>` Supplementary Material Metadata
    - `<table-wrap>` Table Wrapper
    - `<table-wrap-group>` Table Wrapper Group
  - `<alternatives>` Alternatives For Processing
  - `<disp-formula>` Formula, Display
  - `<disp-formula-group>` Formula, Display Group
  - Lists
    - `<def-list>` Definition List
    - `<list>` List
  - Math Elements
    - `<tex-math>` TeX Math Equation
    - `<mml:math>` Math (MathML Tag Set)
  - `<p>` Paragraph
  - Related Material Elements
    - `<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
9.4.84 <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
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript

9.4.85 <element-citation> Element Citation

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

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

Content model:
One or more of any of:
• <string-date> Date as a String
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
9.4.86 <location-id> Electronic Location Identifier
Bibliographic identifier for a document that does not have traditional printed page numbers.

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

Content model:
Text, numbers, or special characters

9.4.87 <email> Email Address
Electronic mail address of a person or institution.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.88 <equation-count> Equation Count
Number of <disp-formula> elements that appear in the document.

Attributes:
- @count Count
- @id Document Internal Identifier
- @xml:base Base

Content model:
This is an EMPTY element
9.4.89 <era> Era of Time
A specified range of years that is named for an event, political ruler, or characterization of the timespan.

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

Content model:
Text, numbers, or special characters

9.4.90 <etal> Et Al.
Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.91 <ext-link> External Link
Link to an external file or resource.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
9.4.92 `<fax>` Fax Number: in an Address

Portion of an address that contains a fax number.

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

**Content model:**
Text, numbers, or special characters, zero or more

9.4.93 `<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` Document Internal Identifier
- `@orientation` Orientation
- `@position` Position
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language

**Content model:**
The following, in order:
- `<object-id>` Object Identifier, zero or more
- `<label>` Label (of an Equation, Figure, Reference, etc.), zero or one
- `<caption>` Caption of a Figure, Table, etc., zero or one
- `<abstract>` Abstract, zero or more
- `<kwd-group>` Keyword Group, zero or more
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` Alternate Text Name (for a figure, etc.)
    - `<long-desc>` Long Description
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - Any combination of:
    - `<disp-formula>` Formula, Display
    - `<disp-formula-group>` Formula, Display Group
    - `<chem-struct-wrap>` Chemical Structure Wrapper
    - `<disp-quote>` Quote, Displayed
    - `<speech>` Speech
    - `<statement>` Statement, Formal
    - `<verse-group>` Verse Form for Poetry
    - `<table-wrap>` Table Wrapper
    - `<p>` Paragraph
    - Lists
      - `<def-list>` Definition List
      - `<list>` List
    - `<alternatives>` Alternatives For Processing
    - `<array>` Array (Simple Tabulation)
9.4.94 <fig-count> Figure Count
Number of <fig> elements that appear in the document.

Attributes:
- @count Count
- @id Document Internal Identifier
- @xml:base Base

Content model:
This is an EMPTY element

9.4.95 <fig-group> Figure Group
Container element for figures that are to be displayed together.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <caption> Caption of a Figure, Table, etc., zero or one
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- Any combination of:
  - Accessibility Elements
    - <alt-text> Alternate Text Name (for a figure, etc.)
    - <long-desc> Long Description
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
- Any combination of:
  - <fig> Figure
  - <alternatives> Alternatives For Processing
  - <graphic> Graphic
  - <media> Media Object

9.4.96 <fixed-case> Fixed Case
Used to mark text in which the case of the content should not be changed, even if the content around it is styled to all upper case or all lower.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.97 <floats-group> Floating Element Group
Container element for floating objects (figures, tables, text boxes, graphics, etc.) that occur within an article. Occurs outside of the narrative flow of the article.

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

Content model:
Any combination of:
• <alternatives> Alternatives For Processing
• <boxed-text> Boxed Text
• <chem-struct-wrap> Chemical Structure Wrapper
• <code> Code
9.4.98 <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 Document Internal Identifier
- @specific-use Specific Use
- @symbol Symbol
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <p> Paragraph, one or more

9.4.99 <fn-group> Footnote Group
Container element for footnotes that appear at the end of the document.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <fn> Footnote, one or more

9.4.100 <fpage> First Page
Page number on which a document starts.

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

Content model:
Text, numbers, or special characters

9.4.101 <front> Front Matter
Container element for the metadata of an article and the journal in which it was published.
Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- `<journal-meta>` Journal Metadata
- `<article-meta>` Article Metadata
- `<notes>` Notes, zero or one

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- `<article-id>` Article Identifier, zero or more
- `<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-alt>` Affiliation Alternatives
- `<author-notes>` Author Note Group, zero or one
- `<pub-date>` Publication Date, zero or more
- `<volume>` Volume Number, zero or more
- `<volume-id>` Volume Identifier, zero or more
- `<volume-series>` Volume Series, zero or one
- `<issue>` Issue Number, zero or more
- `<issue-id>` Issue Identifier, zero or more
- `<issue-title>` Issue Title, zero or more
- `<issue-sponsor>` Issue Sponsor, zero or more
- `<issue-part>` Issue Part, zero or one
- `<volume-issue-group>` Volume Issue Grouping, zero or more
- `<isbn>` ISBN, zero or more
- `<supplement>` Supplement Information, zero or one
- Optionally any one of:
  - The following, in order:
    - `<fpage>` First Page
    - `<lpage>` Last Page, zero or one
    - `<page-range>` Page Ranges, zero or one
  - `<elocation-id>` Electronic Location Identifier
- Any combination of:
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<product>` Product Information
  - `<supplementary-material>` Supplementary Material Metadata
  - `<history>` History: Document History, zero or one
  - `<permissions>` Permissions, zero or one
  - `<self-uri>` URI for This Same Article Online, zero or more
- Any combination of:
  - Related Material Elements
    - `<related-article>` Related Article Information
9.4.103 <funding-group> Funding Group

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

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

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

9.4.104 <funding-source> Funding Source

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
9.4.105 <funding-statement> Funding Statement
Displayable prose statement that describes the funding for the research on which a work was based.

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

Content model:
Any combination of:
- Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

9.4.106 <given-names> Given (First) Names
All given names of a person, such as the first name, middle names, maiden name if used as part of the married name, etc.

Attributes:
- @id Document Internal Identifier
- @initials Initials for Personal Names
- @xml:base Base
9.4.107 <glossary> Glossary Elements List

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

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

Content model:
The following, in order:
- <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
    - <code> Code
    - <fig> Figure
    - <fig-group> Figure Group
    - <graphic> Graphic
    - <media> Media Object
    - <preformat> Preformatted Text
    - <supplementary-material> Supplementary Material Metadata
    - <table-wrap> Table Wrapper
    - <table-wrap-group> Table Wrapper Group
  - <alternatives> Alternatives For Processing
  - <disp-formula> Formula, Display
  - <disp-formula-group> Formula, Display Group
  - Lists
    - <def-list> Definition List
    - <list> List
  - Math Elements
    - <tex-math> TeX Math Equation
    - <mml:math> Math (MathML Tag Set)
  - <p> Paragraph
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <disp-quote> Quote, Displayed
  - <speech> Speech
  - <statement> Statement, Formal
  - <verse-group> Verse Form for Poetry
  - <glossary> Glossary Elements List, zero or more

9.4.108 <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.
9.4.109 <glyph-ref> Glyph Reference for a Private Character

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

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

Content model:
This is an EMPTY element

9.4.110 <gov> Government Report, Cited

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
- <named-content> Named Special (Subject) Content
9.4.111 <graphic> Graphic
Description of and pointer to an external file containing a still image.

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

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

9.4.112 <history> History: Document History
Container element for dates related to the processing history of the document (for example, received date, accepted date).

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
- <date> Date, one or more

9.4.113 <hr> Horizontal Rule
An explicit horizontal rule.

Attributes:
- @id Document Internal Identifier
- @xml:base Base
Content model:
This is an EMPTY element

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

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 Tag Set)
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.115 <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 Document Internal Identifier
@mimetype 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

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9.4.116 <inline-supplementary-material> Inline Supplementary Material Metadata

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

Attributes:

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

Content model:

Any combination of:

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

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Baseline Change Elements
  * <sub> Subscript
  * <sup> Superscript

9.4.118 <institution-id> Institution Identifier
A externally defined institutional identifier, whether publisher-specific (for example “AIP”) or from an established identifying authority (for example, “Ringgold” or “ISNI”).

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

Content model:
Text, numbers, or special characters

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

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

Content model:
Any combination of:
• <institution> Institution Name: in an Address
• <institution-id> Institution Identifier

9.4.120 <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
@id Document Internal Identifier
@publication-format Format of Publication
@specific-use Specific Use
@xml:base Base
9.4.121 <issn> ISSN
International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@publication-format Format of Publication
@pub-type Type of Publication
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters, zero or more

9.4.122 <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:
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters, zero or more

9.4.123 <issue> Issue Number
Issue number of a journal, or in rare instances, a book.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.124 <issue-id> Issue Identifier
Name or identifier of an entire journal issue (for example, a DOI).

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@pub-id-type Type of Publication Identifier
@specific-use Specific Use
<xlink:actuate> Actuating the Link
<xlink:href> Href (Linking Mechanism)
<xlink:role> Role of the Link
<xlink:show> Showing the Link
<xlink:title> Title of the Link
<xlink:type> Type of Link

Content model:
Text, numbers, or special characters, zero or more
9.4.125 <issue-part> Issue Part
Number, name, or other identifier of a sub-part of a journal issue.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.126 <issue-sponsor> Issue Sponsor
Sponsor for an issue of the journal.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.127 <issue-title> Issue Title
Theme or special title for a journal issue.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.128 <italic> Italic
Used to mark text that should appear in an italic or slanted font.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
9.4.129 <journal-id> Journal Identifier
Short code or abbreviation used as an identifier for a journal.

Attributes:
- @id Document Internal Identifier
- @journal-id-type Type of Journal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Text, numbers, or special characters

9.4.130 <journal-meta> Journal Metadata
Container element for metadata about the journal in which the article was published.

Attributes:
- @id Document Internal Identifier
- @xml:base Base
Content model:
The following, in order:
• <journal-id> Journal Identifier, one or more
• <journal-title-group> Journal Title Group, zero or more
• Any combination of:
  ◦ <contrib-group> Contributor Group
  ◦ <aff> Affiliation
  ◦ <aff-alternatives> Affiliation Alternatives
• <issn> ISSN, 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

9.4.131 <journal-subtitle> Journal Subtitle (Full)
Full subtitle of the journal in which the article was published.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.132 <journal-title> Journal Title (Full)
Full title of the journal in which the article was published.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.133 <journal-title-group> Journal Title Group
Container element for the titles of the journal in which the article was published.

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

Content model:
The following, in order:
• <journal-title> Journal Title (Full), zero or more
• <journal-subtitle> Journal Subtitle (Full), zero or more
• <trans-title-group> Translated Title Group, zero or more
• <abbrev-journal-title> Abbreviated Journal Title, zero or more
9.4.134 <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 Document Internal Identifier
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

9.4.135 <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 Document Internal Identifier
- @kwd-group-type Keyword Authority
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- One or more of any of:
  - <kwd> Keyword
  - <compound-kwd> Compound Keyword
  - <nested-kwd> Nested Keyword

9.4.136 <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
9.4.137 <license> License Information
Set of conditions under which the content may be used, accessed, and distributed.

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

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

9.4.138 <license-p> License Paragraph
Paragraph of text within the description of a <license>.

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

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<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
  - `<code>` Code
  - `<fig>` Figure
  - `<fig-group>` Figure Group
  - `<graphic>` Graphic
  - `<media>` Media Object
  - `<preformat>` Preformatted Text
  - `<supplementary-material>` Supplementary Material Metadata
- `<table-wrap>` Table Wrapper
- `<table-wrap-group>` Table Wrapper Group
- `<alternatives>` Alternatives For Processing
- `<disp-formula>` Formula, Display
- `<disp-formula-group>` Formula, Display Group
- Citation Elements
  - `<citation-alternatives>` Citation Alternatives
  - `<element-citation>` Element Citation
  - `<mixed-citation>` Mixed Citation
  - `<nlm-citation>` NLM Citation
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<award-id>` Award Identifier
- `<funding-source>` Funding Source
- `<open-access>` Open Access
- `<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 Tag Set)
- Other Inline Elements
  - `<abbrev>` Abbreviation or Acronym
9.4.139 <list> List
Sequence of two or more items, which may or may not be ordered.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <list-item> List Item, one or more

9.4.140 <list-item> List Item
Single item (one entry) in a list of items.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- One or more of any of:
  - <p> Paragraph
  - Lists
    - <def-list> Definition List
    - <list> List

9.4.141 <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 Document Internal Identifier
9.4.142 `<lpage>` Last Page
Page number on which a document ends.

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

Content model:
- Text, numbers, or special characters, zero or more

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

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

9.4.144 `<meta-name>` Metadata Data Name for Custom Metadata
Name of a single piece of metadata not otherwise defined in the Tag Suite.

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

Content model:
  Text, numbers, or special characters, zero or more

9.4.145 `<meta-value>` Metadata Data Value for Custom Metadata
Value of a single piece of metadata not otherwise defined in the Tag Suite.

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

Content model:
  Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    ◦ `<email>` Email Address
    ◦ `<ext-link>` External Link
    ◦ `<uri>` Uniform Resource Identifier (URI)
  • `<inline-supplementary-material>` Inline Supplementary Material Metadata
  • Related Material Elements
    ◦ `<related-article>` Related Article Information
    ◦ `<related-object>` Related Object Information
  • Emphasis Elements
    ◦ `<bold>` Bold
    ◦ `<fixed-case>` Fixed Case
    ◦ `<italic>` Italic
    ◦ `<monospace>` Monospace Text (Typewriter Text)
    ◦ `<overline>` Overline
    ◦ `<roman>` Roman
    ◦ `<sans-serif>` Sans Serif
    ◦ `<sc>` Small Caps
    ◦ `<strike>` Strike Through
    ◦ `<underline>` Underline
    ◦ `<ruby>` Ruby Annotation Wrapper
  • `<alternatives>` Alternatives For Processing
  • Inline Display Elements
    ◦ `<inline-graphic>` Graphic, Inline
    ◦ `<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 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
9.4.146 <milestone-end> Milestone End
End of a non-hierarchically nested object (for example, a textual component which cannot be expressed in the normal non-overlapping tree structure of an XML document).

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

Content model:
This is an EMPTY element

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

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

Content model:
This is an EMPTY element

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <string-date> Date as a String
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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-acronym> Conference Acronym
• <conf-date> Conference Date
• <conf-loc> Conference Location
• <conf-name> Conference Name
• <conf-sponsor> Conference Sponsor
• <data-title> Data Title
• <date> Date
• <date-in-citation> Date within a Citation
• <day> Day
• <edition> Edition Statement, Cited
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <elocation-id> Electronic Location Identifier
• <etal> Et AL
• <fpage> First Page
• <gov> Government Report, Cited
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper
• <isbn> ISBN
• <issn> ISSN
• <issn-l> ISSN-L (Linking ISSN)
• <issue> Issue Number
• <issue-id> Issue Identifier
• <issue-part> Issue Part
• <issue-title> Issue Title
9.4.149 `<mml:math>` Math (MathML Tag Set)

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

Attributes:

- @xmlns:mml MathML Namespace Declaration

9.4.150 `<monospace>` Monospace Text (Typewriter Text)

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- Emphasis Elements
  - `<bold>` Bold
9.4.151 `<month>` Month
Names one of the months of the year, such as “July” or “07”.

**Attributes:**

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

**Content model:**

Text, numbers, or special characters

9.4.152 `<name>` Name of Person
Container element for the component elements of personal names, such as a `<surname>`.

**Attributes:**

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

**Content model:**

The following, in order:
- Any one of:
  - The following, in order:
9.4.153 <name-alternatives> Name Alternatives
Container element for more than one version of a personal name, the element <name> (for example, the name written in both Japanese Kana characters and the Latin alphabet).

Attributes:
- @id Document Internal Identifier
- @xml:base Base

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <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
  - <code> Code
  - <fig> Figure
  - <fig-group> Figure Group
  - <graphic> Graphic
  - <media> Media Object
9.4.155 <nested-kwd> Nested Keyword

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

Attributes:

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

Content model:

The following, in order:

- One or more of any of:
  - <kwd> Keyword
  - <compound-kwd> Compound Keyword
9.4.156 <nlm-citation> NLM Citation
This element is deprecated; avoid using it. Use <element-citation>.

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

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

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

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

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

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

Content model:
The following, in order:
• <sec-meta> Section Metadata, zero or one
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <title> Title, zero or one
• Any combination of:
  ◦ Paragraph-level Display Elements
    • <address> Address/Contact Information
    • <array> Array (Simple Tabulation)
    • <boxed-text> Boxed Text
    • <chem-struct-wrap> Chemical Structure Wrapper
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformatted> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
    • <table-wrap> Table Wrapper
    • <table-wrap-group> Table Wrapper Group
  ◦ <alternatives> Alternatives For Processing
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
  ◦ Lists
    • <def-list> Definition List
    • <list> List
  ◦ Math Elements
    • <tex-math> TeX Math Equation
    • <mml:math> Math (MathML Tag Set)
  ◦ <p> Paragraph
  ◦ Related Material Elements
    • <related-article> Related Article Information
9.4.159 <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
@id Document Internal Identifier
@pub-id-type Type of Publication Identifier
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters

9.4.160 <on-behalf-of> On Behalf of
When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work “on behalf of” that organization or group, and this element holds the name of the organization or group.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper
• <fn> Footnote
• <target> Target of an Internal Link
• <xref> X (cross) Reference
9.4.161 <open-access> Open Access

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

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

Content model:
Any one of:
- `<p>` Paragraph, one or more

9.4.162 <overline> Overline

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

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

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

Textual unit or block; a textual paragraph.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <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
  ◦ <code> Code
  ◦ <fig> Figure
  ◦ <fig-group> Figure Group
  ◦ <graphic> Graphic
  ◦ <media> Media Object
  ◦ <preformat> Preformatted Text
  ◦ <supplementary-material> Supplementary Material Metadata
  ◦ <table-wrap> Table Wrapper
  ◦ <table-wrap-group> Table Wrapper Group
• <alternatives> Alternatives For Processing
• <disp-formula> Formula, Display
• <disp-formula-group> Formula, Display Group
• Citation Elements
  ◦ <citation-alternatives> Citation Alternatives
  ◦ <element-citation> Element Citation
  ◦ <mixed-citation> Mixed Citation
  ◦ <nlm-citation> NLM Citation
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
9.4.164 `<page-count>` Page Count
Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

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

Content model:
This is an EMPTY element

9.4.165 `<page-range>` Page Ranges
Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

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

Content model:
Text, numbers, or special characters

9.4.166 `<part-title>` Part Title in a Citation
Title of part of a book (for example, chapter, module) described in a bibliographic reference.
Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.167 <patent> Patent Number, Cited
Identification information for a patent in a bibliographic reference or product.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.168 <permissions> Permissions
Container element for copyright and license information.

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

Content model:
The following, in order:
• <copyright-statement> Copyright Statement, zero or more
• <copyright-year> Copyright Year, zero or more
• <copyright-holder> Copyright Holder, zero or more
• Any combination of:
  ◦ <ali:free_to_read> Free to Read (NISO Access License and Indicators)
  ◦ <license> License Information
9.4.169 <person-group> Person Group for a Cited Publication

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

Attributes:
- @id Document Internal Identifier
- @person-group-type Type of People in the Person Group
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Contributor Naming Elements
    - <anonymous> Anonymous
    - <collab> Collaborative (Group) Author
    - <collab-alternatives> Collaboration Alternatives
    - <name> Name of Person
    - <name-alternatives> Name Alternatives
  - <aff> Affiliation
  - <aff-alternatives> Affiliation Alternatives
  - <etal> Et Al.
  - <role> Role or Function Title of Contributor
  - <string-name> Name of Person (Unstructured)

9.4.170 <phone> Phone Number: in an Address

Portion of an address which contains a phone number.

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

Content model:
- Text, numbers, or special characters, zero or more

9.4.171 <postal-code> Postal Code

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

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

Content model:
- Text, numbers, or special characters, zero or more

9.4.172 <prefix> Prefix

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

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
Content model:
Text, numbers, or special characters, zero or more

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

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

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

9.4.174 <price> Price
Sale price or licensing fees of a work.

Attributes:
@content-type Type of Content
@currency Currency
@id Document Internal Identifier
@specific-use Specific Use
Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italics>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper

9.4.175 `<principal-award-recipient>` Principal Award Recipient
Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).

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

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

9.4.176 `<principal-investigator>` Principal Investigator
Individual(s) responsible for the intellectual content of the work reported in the document.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- `<contrib-id>` Contributor Identifier
- `<name>` Name of Person
- `<name-alternatives>` Name Alternatives
- `<string-name>` Name of Person (Unstructured)

9.4.177 `<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.
9.4.178 <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 Document Internal Identifier
- @product-type Type of Product
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- xml:base Base
- xml:lang Language
- xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
- Text, numbers, or special characters
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- <break> Line Break
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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
9.4.179 <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
@id Document Internal Identifier
@iso-8601-date ISO-8601 Formatted Date
@publicaton-format Format of Publication
@pub-type Type of Publication
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• Optionally any one of:
  ◦ The following, in order:
    ▪ <day> Day, zero or one
    ▪ <month> Month, zero or one
  ◦ <season> Season
• <year> Year
• <era> Era of Time, zero or one

9.4.180 <pub-id> Publication Identifier for a Cited Publication
Identifier of a publication in a bibliographic reference or product description.

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

Content model:
Text, numbers, or special characters

9.4.181 <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

9.4.182 `<publisher-loc>` Publisher’s Location
Place of publication, usually a city, such as New York or London.

Attributes:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- Address Elements
  - `<addr-line>` Address Line
  - `<city>` City
  - `<country>` Country: in an Address
  - `<fax>` Fax Number: in an Address
  - `<institution>` Institution Name: in an Address
  - `<institution-wrap>` Institution Wrapper
  - `<phone>` Phone Number: in an Address
  - `<postal-code>` Postal Code
  - `<state>` State or Province
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)

9.4.183 `<publisher-name>` Publisher’s Name
Name of the person, company, or other entity that published a work.

Attributes:

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

Content model:

Any combination of:
- Text, numbers, or special characters
- `<institution>` Institution Name: in an Address
- `<institution-wrap>` Institution Wrapper

9.4.184 `<rb>` Ruby Base Text
This element is one half of a Ruby annotation (`<ruby>`), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (`<rt>`) should be applied.

Attributes:

- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xml:base` Base
Content model:
Any combination of:
• Text, numbers, or special characters
• <bold> Bold
• <fixed-case> Fixed Case
• <italic> Italic
• <monospace> Monospace Text (Typewriter Text)
• <overline> Overline
• <roman> Roman
• <sans-serif> Sans Serif
• <sc> Small Caps
• <strike> Strike Through
• <underline> Underline

9.4.185 <ref> Reference Item
One item in a bibliographic list.

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

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• One or more of any of:
  ◦ Citation Elements
    • <citation-alternatives> Citation Alternatives
    • <element-citation> Element Citation
    • <mixed-citation> Mixed Citation
    • <nlm-citation> NLM Citation
  ◦ <note> Note in a Reference List

9.4.186 <ref-count> Reference Count
Number of references or citations that appear in a bibliographic reference list.

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

Content model:
This is an EMPTY element

9.4.187 <ref-list> Reference List (Bibliographic)
List of bibliographic references for a document or document component.

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

Content model:
The following, in order:
• <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
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
    • <table-wrap> Table Wrapper
  ◦ <alternatives> Alternatives For Processing
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
  ◦ Lists
    • <def-list> Definition List
    • <list> List
  ◦ Math Elements
    • <tex-math> TeX Math Equation
    • <mml:math> Math (MathML Tag Set)
  ◦ <p> Paragraph
  ◦ Related Material Elements
    • <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

9.4.188 <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 Document Internal Identifier
@issue Issue Number of a Related Article
@journal-id Journal Identifier of a Related Article
@journal-id-type Type of Journal Identifier
@page Page of Related Article
@related-article-type Type of Related Article
@specific-use Specific Use
@vol Volume of Related Article
@xlink:actuate Actuating the Link
@xlink:href Href (Linking Mechanism)
@xlink:role Role of the Link
@xlink:show Showing the Link
@xlink:title Title of the Link
@xlink:type Type of Link
@xml:base Base
@xml:lang Language
@xmlns:xlink XLink Namespace Declaration
Content model:
Any combination of:
  • Text, numbers, or special characters
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <roman> Roman
    ◦ <sans-serif> Sans Serif
    ◦ <sc> Small Caps
    ◦ <strike> Strike Through
    ◦ <underline> Underline
    ◦ <ruby> Ruby Annotation Wrapper
  • <journal-id> Journal Identifier
  • <named-content> Named Special (Subject) Content
  • <styled-content> Styled Special (Subject) Content
  • <annotation> Annotation in a Citation
  • <article-title> Article Title
  • <chapter-title> Chapter Title in a Citation
  • <collab> Collaborative (Group) Author
  • <collab-alternatives> Collaboration Alternatives
  • <comment> Comment in a Citation
  • <conf-acronym> Conference Acronym
  • <conf-date> Conference Date
  • <conf-loc> Conference Location
  • <conf-name> Conference Name
  • <conf-sponsor> Conference Sponsor
  • <data-title> Data Title
  • <date> Date
  • <date-in-citation> Date within a Citation
  • <day> Day
  • <edition> Edition Statement, Cited
  • Linking Elements
    ◦ <email> Email Address
    ◦ <ext-link> External Link
    ◦ <uri> Uniform Resource Identifier (URI)
  • <elocation-id> Electronic Location Identifier
  • <etal> Et Al.
  • <fpage> First Page
  • <gov> Government Report, Cited
  • <institution> Institution Name: in an Address
  • <institution-wrap> Institution Wrapper
  • <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
9.4.189 <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 Document Internal Identifier
  @link-type Type of Link (for a Related Object)
  @object-id Object Identifier
  @object-id-type Object Identifier Type
  @object-type Object Type
  @source-id Source Identifier
  @source-id-type Source Identifier Type
  @source-type Source Type
  @specific-use Specific Use
  xlink:actuate Actuating the Link
  xlink:href Href (Linking Mechanism)
  xlink:role Role of the Link
  xlink:show Showing the Link
  xlink:title Title of the Link
  xlink:type Type of Link
  xml:base Base
  xml:lang Language
  xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
  • Text, numbers, or special characters
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
9.4.190 <response> Response

Reply, response, or commentary concerning the journal article. In the typical case, the response is included in the same XML package as the original article, attached at the end of the article proper. Metadata that differs from that of the original article (for example, title, author), may be captured using the <front-stub> element; if the <front-stub> element is used, any metadata not specifically tagged is inherited from the original article.

Attributes:
- @id Document Internal Identifier
- @response-type Type of Response
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- 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

9.4.191 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
9.4.192 <roman> Roman

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 Tag Set)
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <milestone-end> Milestone End
  - <milestone-start> Milestone Start
  - <named-content> Named Special (Subject) Content
  - <named-content> Named Special (Subject) Content
  - <styled-content> Styled Special (Subject) Content
- <fn> Footnote
- <target> Target of an Internal Link
- <xref> X (cross) Reference
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
9.4.193 <rt> Ruby Textual Annotation
This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be a small as a single character.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.194 <ruby> Ruby Annotation Wrapper
An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains a Ruby Base (<rb> element) which contains the document text and a Ruby Textual Annotation (<rt> element) that applies to that base text.

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

Content model:
The following, in order:
- <rb> Ruby Base Text
- <rt> Ruby Textual Annotation

9.4.195 <sans-serif> Sans Serif
Used to mark text that should appear in a sans-serif font.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
9.4.196 <sc> Small Caps

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - Inline Supplementary Material Metadata
  - Related Article Information
  - Related Object Information
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <ruby> Ruby Annotation Wrapper
9.4.197 <season> Season
Season of publication (for example, Spring, Third Quarter).

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

Content model:
Text, numbers, or special characters

9.4.198 <sec> Section
Headed group of material; the basic structural unit of the body of a document.

Attributes:
@id Document Internal Identifier
@sec-type Type of Section
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <sec-meta> Section Metadata, zero or one
• Any one of:
  • <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
    • <code> Code
    • <fig> Figure
    • <fig-group> Figure Group
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
9.4.199 <sec-meta> Section Metadata
Container element for section-level metadata that is different from the parent document.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <contrib-group> Contributor Group, zero or more
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- <permissions> Permissions, zero or one

9.4.200 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
Text, numbers, or special characters, zero or more
9.4.201 <series> Series
Series information about a journal or book in a bibliographic reference or product.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content

9.4.202 <series-text> Series Text: Header Text to Describe
Textual description of the series of articles that is named in a <series-title> element.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
9.4.203 <series-title> Series Title
Title of the journal series (bibliographic) or series of articles internal to one issue of a journal

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content

9.4.204 <sig> Signature
One contributor’s signature and associated material (such as a text restatement of the affiliation) inside a signature block.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  • <sub> Subscript
9.4.205 <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 graphic signature or description of the person(s) responsible for or attesting to the content.

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

Content model:
Any combination of:
- <break> Line Break
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- <graphic> Graphic
- <media> Media Object
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <private-char> Private Character (Custom or Unicode)
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- <sig> Signature
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

9.4.206 <size> Size

Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:
- @id: Document Internal Identifier
- @specific-use: Specific Use
- @units: Units
- @xml:base: Base
- @xml:lang: Language
Content model:
Text, numbers, or special characters, zero or more

9.4.207 <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 Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.208 <speaker> Speaker
One who utters one segment of a speech or dialog.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <degrees> Degree(s)
• <given-names> Given (First) Names
• <prefix> Prefix
• <surname> Surname
• <suffix> Suffix
• <fn> Footnote
• <target> Target of an Internal Link
• <xref> X (cross) Reference
9.4.209 <speech> Speech

One exchange (a single speech) in a real or imaginary conversation between two or more entities.

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

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

9.4.210 <state> State or Province

The name of a state, province, territory or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, or parish. The names for such a unit vary geopolitically.

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

Content model:
Text, numbers, or special characters, zero or more

9.4.211 <statement> Statement, Formal

Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <abstract> Abstract, zero or more
- <kwd-group> Keyword Group, zero or more
- One or more of any of:
  - <p> Paragraph
  - <statement> Statement, Formal
- Any combination of:
  - Ownership Elements
    - <attrib> Attribution
    - <permissions> Permissions

9.4.212 <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.
9.4.213 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:

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

Content model:

Any combination of:
• Text, numbers, or special characters
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <roman> Roman
    ◦ <sans-serif> Sans Serif
    ◦ <sc> Small Caps
    ◦ <strike> Strike Through
    ◦ <underline> Underline
    ◦ <ruby> Ruby Annotation Wrapper
  • <named-content> Named Special (Subject) Content
  • <styled-content> Styled Special (Subject) Content
  • <day> Day
  • <month> Month
  • <pub-id> Publication Identifier for a Cited Publication
  • <source> Source
  • <std-organization> Standards Organization
  • <year> Year
  • Baseline Change Elements
    ◦ <sub> Subscript
    ◦ <sup> Superscript

9.4.214 <strike> Strike Through

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

Attributes:

@id Document Internal Identifier
@specific-use Specific Use
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 Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.215 <string-date> Date as a String
Date represented as text.

Attributes:
@calendar Calendar
@content-type Type of Content
@id Document Internal Identifier
@iso-8601-date ISO-8601 Formatted Date
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
• Text, numbers, or special characters
• <day> Day
• <era> Era of Time
• <month> Month
• <season> Season
• <year> Year

9.4.216 <string-name> Name of Person (Unstructured)
Container element for personal names captured with mixed-content where the order of the name components is not enforced.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <degrees> Degree(s)
• <given-names> Given (First) Names
• <prefix> Prefix
• <surname> Surname
• <suffix> Suffix

9.4.217 <styled-content> Styled Special (Subject) Content
Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace or any of the other emphasis elements, and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:
@alt Alternative Text
@id Document Internal Identifier
@specific-use Specific Use
@style Style (NISO JATS table model; MathML Tag Set)
@style-type Style Type
@toggle Toggle Switch
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Paragraph-level Display Elements
  ◦ <address> Address/Contact Information
  ◦ <array> Array (Simple Tabulation)
9.4.218 `<sub>` Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:

- `@arrange` Arrangement of Subscripts and Superscripts
- `@id` Document Internal Identifier
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 Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.219 <sub-article> Sub-article
An article that is completely contained inside another article.

Attributes:
@article-type Type of Article
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• Any one of:
9.4.220 <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:
- @id Document Internal Identifier
- @specific-use Specific Use
- @subj-group-type Type of Subject Group
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- One or more of any of:
  - <subject> Subject Grouping Name
  - <compound-subject> Compound Subject Name
  - <subj-group> Subject Group, zero or more

9.4.221 <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 Document Internal Identifier
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
    - <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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

9.4.222 <subtitle> Document Subtitle
Subordinate part of a title for a document or document component.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
  ◦ <break> Line Break

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9.4.223 <suffix> Suffix
Qualifiers that follow a person’s name (for example, Sr., Jr., III, 3rd).

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

Content model:
Text, numbers, or special characters, zero or more

9.4.224 <sup> Superscript
Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:
- @arrange Arrangement of Subscripts and Superscripts
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
9.4.225 <supplement> Supplement Information
Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@supplement-type Type of Supplement
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <contrib-group> Contributor Group
• <title> Title

9.4.226 <supplementary-material> Supplementary Material Metadata
Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@mimetype Mime Subtype
@mimetype Mime Type
@orientation Orientation
9.4.227 <surname> Surname
Surname of a person.

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

Content model:
Text, numbers, or special characters, zero or more
9.4.228 <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: Document Internal Identifier
- @rules: Rules (NISO JATS table model)
- @specific-use: Specific Use
- @style: Style (NISO JATS table model; MathML Tag Set)
- @summary: Summary (NISO JATS table model)
- @width: Width (NISO JATS table model)
- @xml:base: Base

Content model:
The following, in order:
- Any one of:
  - <col> Table Column (NISO JATS table model), zero or more
  - <colgroup> Table Column Group (NISO JATS table model), zero or more
- Any one of:
  - The following, in order:
    - <thead> Table Header (NISO JATS table model), zero or one
    - <tfoot> Table Footer (NISO JATS table model), zero or one
    - <tbody> Table Body (NISO JATS table model), one or more

9.4.229 <table-count> Table Count

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

Attributes:
- @count: Count
- @id: Document Internal Identifier
- @xml:base: Base

Content model:
This is an EMPTY element

9.4.230 <table-wrap> Table Wrapper

Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

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

Content model:
The following, in order:
- <object-id> Object Identifier, zero or more
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <caption> Caption of a Figure, Table, etc., zero or one
- <abstract> Abstract, zero or more
• <kw-group> Keyword Group, zero or more
• Any combination of:
  ◦ Accessibility Elements
    • <alt-text> Alternate Text Name (for a figure, etc.)
    • <long-desc> Long Description
  ◦ Linking Elements
    • <email> Email Address
    • <ext-link> External Link
    • <uri> Uniform Resource Identifier (URI)
• Any combination of:
  ◦ <disp-quote> Quote, Displayed
  ◦ <speech> Speech
  ◦ <statement> Statement, Formal
  ◦ <verse-group> Verse Form for Poetry
  ◦ Lists
    • <def-list> Definition List
    • <list> List
  ◦ <alternatives> Alternatives For Processing
  ◦ <chem-struct-wrap> Chemical Structure Wrapper
  ◦ <code> Code
  ◦ <graphic> Graphic
  ◦ <media> Media Object
  ◦ <preformat> Preformatted Text
  ◦ <table> Table (NISO JATS table model)
• Any combination of:
  ◦ <table-wrap-foot> Table Wrapper Footer
  ◦ Ownership Elements
    • <attrib> Attribution
    • <permissions> Permissions

9.4.231 <table-wrap-foot> Table Wrapper Footer
Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

Attributes:
@id Document Internal Identifier
$xml:base Base

Content model:
The following, in order:
• <title> Title, zero or one
• One or more of any of:
  ◦ <p> Paragraph
  ◦ <fn-group> Footnote Group
  ◦ <fn> Footnote
  ◦ Ownership Elements
    • <attrib> Attribution
    • <permissions> Permissions

9.4.232 <table-wrap-group> Table Wrapper Group
Container element for tables (<table-wrap> elements) that are to be displayed together.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@orientation Orientation
@position Position
@specific-use Specific Use
$xml:base Base
$xml:lang Language
9.4.233 <target> Target of an Internal Link

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

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @target-type Type of Target
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

9.4.234 <tbody> Table Body (NISO JATS table model)

Container element that holds the rows and columns in one of the body (as opposed to the header) portions of a table.

Attributes:
- @align Horizontal Alignment (NISO JATS table model)
- @char Table Cell Alignment Character (NISO JATS table model)
- @charoff Table Character Offset (NISO JATS table model)
- @content-type Type of Content
- @id Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base
Content model:
<tr> Table Row (NISO JATS table model), one or more

9.4.235 <td> Table Data Cell (NISO JATS table model)
One ordinary cell in the body of a table, as opposed to a cell in the table header. (This element is based on and intended to be converted easily to the XHTML td element.)

Attributes:
@abbr Abbreviation (NISO JATS table model)
@align Horizontal Alignment (NISO JATS table model)
@axis Axis (NISO JATS table model)
@char Table Cell Alignment Character (NISO JATS table model)
@charoff Table Character Offset (NISO JATS table model)
@colspan Column Span (NISO JATS table model)
@content-type Type of Content
@headers Headers (NISO JATS table model)
@id Document Internal Identifier
@rowspan Row Span (NISO JATS table model)
@scope Scope (NISO JATS table model)
@style Style (NISO JATS table model; MathML Tag Set)
@valign Vertical Alignment (NISO JATS table model)
+xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <hr> Horizontal Rule
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• <disp-formula> Formula, Display
• <disp-formula-group> Formula, Display Group
• <break> Line Break
• Citation Elements
  ◦ <citation-alternatives> Citation Alternatives
  ◦ <element-citation> Element Citation
  ◦ <mixed-citation> Mixed Citation
  ◦ <nlm-citation> NLM Citation
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Lists
  ◦ <def-list> Definition List
  ◦ <list> List
9.4.236 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
9.4.237 <term-head> Definition List: Term Head

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

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
9.4.238 <tex-math> TeX Math Equation

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

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @notation Notation
- @specific-use Specific Use
- @version Version of TeX or LaTeX
- @xml:base Base

Content model:
- Text, numbers, or special characters

9.4.239 <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 graphic version of the table).

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
9.4.240  `<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` Document Internal Identifier
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@valign` Vertical Alignment (NISO JATS table model)
- `@xml:base` Base

Content model:

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

9.4.241  `<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` Document Internal Identifier
- `@rowspan` Row Span (NISO JATS table model)
- `@scope` Scope (NISO JATS table model)
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@valign` Vertical Alignment (NISO JATS table model)
- `@xml:base` Base

Content model:

- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - `<email>` Email Address
• <ext-link> External Link
• <uri> Uniform Resource Identifier (URI)
• <hr> Horizontal Rule
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  • <related-article> Related Article Information
  • <related-object> Related Object Information
• <disp-formula> Formula, Display
• <disp-formula-group> Formula, Display Group
• <break> Line Break
• Citation Elements
  • <citation-alternatives> Citation Alternatives
  • <element-citation> Element Citation
  • <mixed-citation> Mixed Citation
  • <nlm-citation> NLM Citation
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Lists
  • <def-list> Definition List
  • <list> List
• Math Elements
  • <tex-math> TeX Math Equation
  • <mml:math> Math (MathML Tag Set)
• <p> Paragraph
• 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)
• <code> Code
• <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
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript
9.4.242 `<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` Document Internal Identifier
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@valign` Vertical Alignment (NISO JATS table model)
- `@xml:base` Base

Content model:
- `<tr>` Table Row (NISO JATS table model), one or more

9.4.243 `<time-stamp>` Time Stamp for Cited Work
This element is deprecated; avoid using it. Use `<date-in-citation>`.

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

Content model:
- Text, numbers, or special characters, zero or more

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - `<email>` Email Address
    - `<ext-link>` External Link
    - `<uri>` Uniform Resource Identifier (URI)
  - `<inline-supplementary-material>` Inline Supplementary Material Metadata
  - Related Material Elements
    - `<related-article>` Related Article Information
    - `<related-object>` Related Object Information
  - Emphasis Elements
    - `<bold>` Bold
    - `<fixed-case>` Fixed Case
    - `<italic>` Italic
    - `<monospace>` Monospace Text (Typewriter Text)
    - `<overline>` Overline
    - `<roman>` Roman
    - `<sans-serif>` Sans Serif
    - `<sc>` Small Caps
    - `<strike>` Strike Through
    - `<underline>` Underline
9.4.245 <title-group> Title Group
Container element to hold the various titles for a document or a document component.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <article-title> Article Title
- <subtitle> Document Subtitle, zero or more
- <trans-title-group> Translated Title Group, zero or more
- <alt-title> Alternate Title, zero or more
- <fn-group> Footnote Group, zero or one

9.4.246 <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 Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
One or more of any of:
9.4.247 <trans-abstract> Translated Abstract

Abstract that has been translated into a language other than that in which the work was originally published.

Attributes:

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

Content model:

The following, in order:

- <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

9.4.248 <trans-source> Translated Source

Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
9.4.249 <trans-subtitle> Translated Subtitle

Document or document component subtitle that has been translated into a language other than that of the original document or document component subtitle.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <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 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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
- <break> Line Break

9.4.250 <trans-title> Translated Title

Title of a document or document part that has been translated into a language other than that of the original publication. When a document is published simultaneously in more than one language, one language must be chosen for the title and all other document titles become translated titles.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
  ◦ <break> Line Break

9.4.251 <trans-title-group> Translated Title Group
Container element for translated and transliterated titles.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
Content model:
The following, in order:
• <trans-title> Translated Title
• <trans-subtitle> Translated Subtitle, zero or more

9.4.252 <underline> Underline
Used to mark text that should appear with a horizontal line beneath it.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@underline-style Appearance of the Underline
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <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 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
• Baseline Change Elements
  ◦ <sub> Subscript
9.4.253 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- xml:base Base
- xml:lang Language
- xmlns:xlink XLink Namespace Declaration

Content model:
Text, numbers, or special characters, zero or more

9.4.254 <verse-group> Verse Form for Poetry
Song, poem, or verse.

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

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- <subtitle> Document Subtitle, zero or one
- One or more of any of:
  - <verse-line> Line of a Verse
  - <verse-group> Verse Form for Poetry
- Any combination of:
  - Ownership Elements
  - <attrib> Attribution
  - <permissions> Permissions

9.4.255 <verse-line> Line of a Verse
One line of a poem or verse.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
9.4.256 <version> Version Statement
A full version statement, which may be only a number, for data or software that is cited or described

Attributes:

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

Content model:

Any combination of:

• Text, numbers, or special characters
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript

9.4.257 <volume> Volume Number
Number of a journal (or other document) within a series.

Attributes:

@content-type Type of Content
@id Document Internal Identifier
@seq Sequence
@specific-use Specific Use
@xml:base Base
@xml:lang Language
9.4.258 <volume-id> Volume Identifier
Name or identifier (for example, DOI) that describes an entire volume.

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

9.4.259 <volume-issue-group> Volume Issue Grouping
A grouping element to hold related volume and issue elements

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

Content model:
The following, in order:
- <volume> Volume Number, zero or more
- <volume-id> Volume Identifier, zero or more
- <volume-series> Volume Series, zero or one
- <issue> Issue Number, zero or more
- <issue-id> Issue Identifier, zero or more
- <issue-title> Issue Title, zero or more
- <issue-sponsor> Issue Sponsor, zero or more
- <issue-part> Issue Part, zero or one

9.4.260 <volume-series> Volume Series
Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

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

Content model:
Text, numbers, or special characters, zero or more
9.4.261 <word-count> Word Count
The approximate number of words that appear in a document or document component.

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

Content model:
This is an EMPTY element

9.4.262 <xref> X (cross) Reference
Reference to an object within the document (for example, a table, a bibliographic citation).

Attributes:
@alt Alternative Text  
@id Document Internal Identifier  
@ref-type Type of Cross-Reference  
@rid Reference to an Identifier  
@specific-use Specific Use  
@xml:base Base  
@xml:lang Language

Content model:
Any combination of:  
• Text, numbers, or special characters  
• Emphasis Elements  
  ◦ `<bold>` Bold  
  ◦ `<fixed-case>` Fixed Case  
  ◦ `<italic>` Italic  
  ◦ `<monospace>` Monospace Text (Typewriter Text)  
  ◦ `<overline>` Overline  
  ◦ `<roman>` Roman  
  ◦ `<sans-serif>` Sans Serif  
  ◦ `<sc>` Small Caps  
  ◦ `<strike>` Strike Through  
  ◦ `<underline>` Underline  
  ◦ `<ruby>` Ruby Annotation Wrapper  
• `<named-content>` Named Special (Subject) Content  
• `<styled-content>` Styled Special (Subject) Content  
• Baseline Change Elements  
  ◦ `<sub>` Subscript  
  ◦ `<sup>` Superscript

9.4.263 <year> Year
Representation, usually numerical, of a calendar year.

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

Content model:
Text, numbers, or special characters
9.5 Attributes

Each 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.

9.5.1 @abbr Abbreviation (NISO JATS table model)

An abbreviated version of the cell’s content. This allows visual browsers to use the short form if space is limited, and non-visual browsers can give a cell’s header information in an abbreviated form before rendering each cell. (This attribute is based on and intended to be converted easily to the XHTML abbr attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A brief note of what is in the cell, mostly for use by accessibility software.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Brief name for the type of abstract, such as “short”.</td>
</tr>
</tbody>
</table>

### 9.5.4 `@align` Horizontal Alignment (NISO JATS table model)

Sets the horizontal (line) alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `align` attribute.)

In elements `<col>, <colgroup>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>center</td>
<td>Center align the cell contents.</td>
</tr>
<tr>
<td>char</td>
<td>Align the text on the character identified with the <code>@char</code> attribute.</td>
</tr>
<tr>
<td>justify</td>
<td>Fully justify cell contents (right and left justification).</td>
</tr>
<tr>
<td>left</td>
<td>Left justify cell contents.</td>
</tr>
<tr>
<td>right</td>
<td>Right justify cell contents.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Simple textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.</td>
</tr>
</tbody>
</table>

### 9.5.6 `@alt-title-type` Type of Alternate Title

Reason for or purpose of an alternate title (for example, “toc” for a title used in a Table of Contents, “rt-running” for a right-running-head title for print).

In element `<alt-title>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A word or phrase describing the rationale for this version of the title, for example, “right-running-head”.</td>
</tr>
</tbody>
</table>

### 9.5.7 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>stack</td>
<td>The multiple subscripts or superscripts should be placed one above the other as compactly as possible.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>stagger</td>
<td>The multiple subscripts or superscripts should be stretched out in a line.</td>
</tr>
</tbody>
</table>

### 9.5.8 @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 elements `<article>` and `<sub-article>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of article, for example, “research-article”.</td>
</tr>
</tbody>
</table>

### 9.5.9 @assigning-authority Authority Responsible for an Identifier

Names the authority (such as CrossRef, GenBank, or PDB) that assigned the identifier or is responsible for the identifier.

In elements `<ext-link>` and `<pub-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The name of the organization assigning the identifier.</td>
</tr>
</tbody>
</table>

### 9.5.10 @authenticated Authenticated

The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.

In element `<contrib-id>`, this attribute will be assigned the value false by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>true</td>
<td>This contributor identifier has been marked by the issuing authority as authenticated.</td>
</tr>
<tr>
<td>false</td>
<td>No guarantee has been made about this contributor identifier.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of award, such as “contract” or “grant”.</td>
</tr>
</tbody>
</table>

### 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.
### 9.5.13 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the position of the inline graphic.</td>
</tr>
</tbody>
</table>

### 9.5.14 `@border` Border (Frame) around a Table (NISO JATS table model)

Thickness, in pixels, of the border to draw around the table. A value of “0” indicates that the table has no border. (This attribute is based on and intended to be converted easily to the XHTML `border` attribute.)

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the border around the table.</td>
</tr>
</tbody>
</table>

### 9.5.15 `@calendar` Calendar

Name of the calendar used in naming a date such as a publication date, for example, “Gregorian”, “Japanese” (Emperor years), or “Thai Buddha”.

In this Tag Set, many of the date elements, such as `<pub-date>` and `<year>`, may take a `@calendar` attribute to indicate the calendar in which the date is given. For example, a calendar might be named as:

- Arabic-Hijrah
- Chinese
- English-Hijrah
- Gregorian
- Japanese
- Korean
- Persian
- ROC-official
- Thai-Buddha

Here is an example of a year and calendar in Pinyin:

Neither a date nor a calendar need be stated in English. The element that holds the `@calendar` attribute may also take an `@xml:lang` attribute to name the language or script of the element content. For example, here is a year from the traditional Chinese calendar, in which both the `@calendar` and the year itself are given in Chinese:

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, `<pub-date>`, `<string-date>`, and `<year>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name of the calendar used in the date, for example, “Gregorian”.</td>
</tr>
</tbody>
</table>
9.5.16 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the cell padding.</td>
</tr>
</tbody>
</table>

9.5.17 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the space between cells in a table.</td>
</tr>
</tbody>
</table>

9.5.18 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>When used in conjunction with align=&quot;char&quot;, the contents of the table entry are aligned relative to the character specified by this attribute.</td>
</tr>
</tbody>
</table>

9.5.19 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>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).</td>
</tr>
</tbody>
</table>

9.5.20 @code-type Type of Code
The type of this code, used to categorize or describe the code.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.</td>
</tr>
</tbody>
</table>
9.5.21 @code-version Code Version

Version of this program or code fragment

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Version of the program (code) that is shown inside the &lt;code&gt; element, for example, “25.1 second patch”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase that describes the role that the collaborators played in the publication, for example, “authors”.</td>
</tr>
</tbody>
</table>

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 XHTML colspan attribute.)

In elements <td> and <th>, this attribute will be assigned the value 1 by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>How many column widths this cell will span, for example, “3”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names/describes the distinct function for the &lt;named-content&gt; 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”.</td>
</tr>
</tbody>
</table>
<license-p>, <long-desc>, <lpage>, <media>, <milestone-end>, <milestone-start>, <month>, <name>, <nested-kwd>, <note>, <object-id>, <p>, <page-range>, <patent>, <phone>, <postal-code>, <prefix>, <price>, <publisher>, <rb>, <ref>, <ref-list>, <related-object>, <role>, <rt>, <ruby>, <season>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <sig-block>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-date>, <string-name>, <subject>, <subtitle>, <suffix>, <supplementary-material>, <table>, <table-wrap>, <table-wrap-group>, <tbody>, <td>, <tex-math>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <tr>, <trans-source>, <trans-title>, <trans-title-group>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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, &quot;ORCID&quot; or &quot;JST&quot;.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase naming or describing the contribution, such as “author”.</td>
</tr>
</tbody>
</table>

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 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Typically a word or phrase that names or describes the purpose of a date, for example, &quot;received&quot; for the date a manuscript was received or &quot;corrected&quot; for the date a document was corrected.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The contributor was living when the document was published.</td>
</tr>
<tr>
<td>yes</td>
<td>The contributor had died by the time the document was published.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A rough visual description of the appearance of the &lt;private-char&gt; character, for example, “Greek capital letter omega with tonos”.</td>
</tr>
</tbody>
</table>

9.5.36 @designator Designator of the Edition
The edition number as an unadorned numeric or alphabetic value.

In elements <edition> and <version>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The numeral or alphabetic character that indicates the edition number</td>
<td>The straight unadorned edition number, for machine processing. Typically this is a number such as “4” or an alphabetic character such as “λ”.</td>
</tr>
</tbody>
</table>

9.5.37 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An identifier for the document that contains the related object (&lt;related-object&gt;).</td>
</tr>
</tbody>
</table>

9.5.38 @document-id-type Document Identifier Type
Type of document identifier (for example, a DOI or a publisher’s identifier) named in the @document-id attribute of the <related-object> element to identify a document.
In element `<related-object>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The type of document identifier of the related object, for example, a DOI.</td>
<td>The type of document identifier named in the <code>@document-id</code> attribute for a <code>&lt;related-object&gt;</code> element. This attribute qualifies the <code>@document-id</code> attribute.</td>
</tr>
</tbody>
</table>

### 9.5.39 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of related object, for example, “article” for a journal article.</td>
</tr>
</tbody>
</table>

### 9.5.40 `@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 1.1 (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The NISO JATS version 1.1 (ANSI NISO Z39.96-2015) of the Journal Publishing Tag Set is being used.</td>
</tr>
</tbody>
</table>

### 9.5.41 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The value of the elocation identifier.</td>
</tr>
</tbody>
</table>

### 9.5.42 `@end_date` End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>This contributor did not participate equally with all other contributors.</td>
</tr>
<tr>
<td>yes</td>
<td>This contributor participated equally with all other contributors.</td>
</tr>
</tbody>
</table>
### 9.5.44 @executable Executable

Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The code cannot or should not be executed.</td>
</tr>
<tr>
<td>yes</td>
<td>The code is intended to be run.</td>
</tr>
</tbody>
</table>

### 9.5.45 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of link, for example, “ftp” or “uri”.</td>
</tr>
</tbody>
</table>

### 9.5.46 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of object shown in the figure, for example, “diagram”, “chart”, or “map”.</td>
</tr>
</tbody>
</table>

### 9.5.47 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>abbr</td>
<td>Abbreviations.</td>
</tr>
<tr>
<td>com</td>
<td>Communicated-by information.</td>
</tr>
<tr>
<td>con</td>
<td>Contributed-by information.</td>
</tr>
<tr>
<td>conflict</td>
<td>Conflict of interest statements.</td>
</tr>
<tr>
<td>corresp</td>
<td>Corresponding author information not identified separately, but merely footnoted.</td>
</tr>
<tr>
<td>current-aff</td>
<td>Contributor’s current affiliation.</td>
</tr>
<tr>
<td>deceased</td>
<td>Person has died since article was written.</td>
</tr>
<tr>
<td>edited-by</td>
<td>Contributor has the role of an editor.</td>
</tr>
<tr>
<td>equal</td>
<td>Contributed equally to the creation of the document.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>financial-disclosure</td>
<td>Statement of funding or denial of funds received in support of the research on which an article is based.</td>
</tr>
<tr>
<td>on-leave</td>
<td>Contributor is on sabbatical or other leave of absence.</td>
</tr>
<tr>
<td>other</td>
<td>Some footnote type, other than those enumerated.</td>
</tr>
<tr>
<td>participating-researchers</td>
<td>Contributor was a researcher for an article.</td>
</tr>
<tr>
<td>present-address</td>
<td>Contributor’s current address.</td>
</tr>
<tr>
<td>presented-at</td>
<td>Conference, colloquium, or other occasion at which this paper was presented.</td>
</tr>
<tr>
<td>presented-by</td>
<td>Contributor who presented the material.</td>
</tr>
<tr>
<td>previously-at</td>
<td>Contributor’s previous location or affiliation.</td>
</tr>
<tr>
<td>study-group-members</td>
<td>Contributor was a member of the study group for the research.</td>
</tr>
<tr>
<td>supplementary-material</td>
<td>Points to or describes supplementary material for the article.</td>
</tr>
<tr>
<td>supported-by</td>
<td>Research upon which an article is based was supported by some entity.</td>
</tr>
</tbody>
</table>

### 9.5.48 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The offset of the character into a glyph table.</td>
</tr>
</tbody>
</table>

### 9.5.49 @fontname Font Name
Name of the font.

In element `<glyph-data>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A name for the font.</td>
</tr>
</tbody>
</table>

### 9.5.50 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A word</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 9.5.51 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>above</td>
<td>Rule above only (top).</td>
</tr>
<tr>
<td>below</td>
<td>Rule below only (bottom).</td>
</tr>
<tr>
<td>border</td>
<td>Rules on all table rows and columns.</td>
</tr>
<tr>
<td>box</td>
<td>Rules on all 4 sides.</td>
</tr>
<tr>
<td>hsides</td>
<td>Rules on horizontal sides only (topbot).</td>
</tr>
<tr>
<td>lhs</td>
<td>Left-side rule only.</td>
</tr>
<tr>
<td>rhs</td>
<td>Right-side rule only.</td>
</tr>
<tr>
<td>void</td>
<td>No border (none).</td>
</tr>
<tr>
<td>vsides</td>
<td>Rules on vertical sides only (sides).</td>
</tr>
</tbody>
</table>

### 9.5.52 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <code>&lt;glyph-ref&gt;</code> element to point to the @id attribute of an existing <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

### 9.5.53 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to (contains) a list of one or more IDs of rows and columns that supply header information.</td>
</tr>
</tbody>
</table>

### 9.5.54 @id Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In element `<target>`, this attribute **must** be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An XML identifier (ID)</td>
<td>A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.</td>
</tr>
</tbody>
</table>
This attribute is optional and need not be used by organizations that do not ordinarily record contributor’s initials.

Initials for Personal Names

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An XML identifier (ID)</td>
<td>A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.</td>
</tr>
</tbody>
</table>
In elements `<given-names>` and `<surname>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The initial letters of a person’s given names.</td>
</tr>
</tbody>
</table>

### 9.5.56 @institution-id-type Type of Institution Identifier

Type or source of the institution identifier, such as ISNI or Ringgold.

In element `<institution-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type or source of the institution identifier, such as ISNI or Ringgold.</td>
</tr>
</tbody>
</table>

### 9.5.57 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date value (“YYYY-MM-DDThh:mm:ss”) for a JATS date-specific element, whether the date be specified as text, an ISO date, a partial date, or as any other date format. If the date given in the content of the element is in a non-Gregorian calendar, this attribute will hold the Gregorian calendar equivalent of that date.

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, `<pub-date>`, `<string-date>`, and `<year>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 standard date format (“YYYY-MM-DDThh:mm:ss”) for the date given in the element, for example, “2015-07-15”.</td>
</tr>
</tbody>
</table>

### 9.5.58 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The number of the journal issue, such as “48”.</td>
</tr>
</tbody>
</table>

### 9.5.59 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A journal abbreviation or other journal identifier.</td>
</tr>
</tbody>
</table>

### 9.5.60 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”).</td>
</tr>
</tbody>
</table>

9.5.61 @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 element `<kwd-group>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”).</td>
</tr>
</tbody>
</table>

9.5.62 @language Code Language
Programming or scripting language in which this code is written, e.g. "javascript", for code written in "Javascript 3.0". (The "3.0" is recorded in the @language-version attribute.)

In element `<code>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The lower case name of the programming or scripting language</td>
</tr>
</tbody>
</table>

9.5.63 @language-version Code Language Version
Version of the language in which this code is written, e.g. "3.0", for code written in "Javascript 3.0". (The language name "javascript" is recorded in the @language attribute.)

In element `<code>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The version of the language in the code sample, such as “3.0”, “8A”, etc.</td>
</tr>
</tbody>
</table>

9.5.64 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>
9.5.65 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of relationship between the related object and the current document.</td>
</tr>
</tbody>
</table>

9.5.66 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

9.5.67 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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).</td>
</tr>
</tbody>
</table>

9.5.68 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific mime subtype (IANA).</td>
</tr>
</tbody>
</table>

9.5.69 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The appropriate mime type for the object.</td>
</tr>
</tbody>
</table>

### 9.5.70 `@name` Name (Private Character)

This attribute is used for use with `<private-char>`, to contain the unique name for the private character being defined.

In element `<private-char>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>For use with <code>&lt;private-char&gt;</code>, 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, &quot;NORTHWEST SOUTHEAST ARROW&quot;).</td>
</tr>
</tbody>
</table>

### 9.5.71 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>eastern</td>
<td>The name will both be displayed and sorted/inverted with the family name preceding the given name.</td>
</tr>
<tr>
<td>given-only</td>
<td>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.</td>
</tr>
<tr>
<td>islensk</td>
<td>The name will both be displayed and sorted/inverted with the given name preceding the family name.</td>
</tr>
<tr>
<td>western</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 9.5.72 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaTeX</td>
<td>The content of the associated element will be in LaTeX.</td>
</tr>
<tr>
<td>TEX</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
<tr>
<td>TeX</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
<tr>
<td>tex</td>
<td>The content of the associated element will be in TeX.</td>
</tr>
</tbody>
</table>

### 9.5.73 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The note type, if known, for example, &quot;note-in-proof&quot;.</td>
</tr>
</tbody>
</table>
9.5.74 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>The identifier of the text or graphic object for a &lt;related-object&gt;</td>
</tr>
<tr>
<td>characters</td>
<td>element.</td>
</tr>
</tbody>
</table>

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

9.5.75 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>The type of the identifier, for example, “ID” for an XML attribute of</td>
</tr>
<tr>
<td>characters</td>
<td>type ID.</td>
</tr>
</tbody>
</table>

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

9.5.76 @object-type Object Type
Type of object (for example, “table”, “figure”, “sidebar”) that is the target of the <related-object> element.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special</td>
<td>Names the type of related object, such as “table”.</td>
</tr>
<tr>
<td>characters</td>
<td></td>
</tr>
</tbody>
</table>

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

9.5.77 @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”).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>landscape</td>
<td>Indicates that the object should be rotated by 90 degrees.</td>
</tr>
<tr>
<td>portrait</td>
<td>Indicates that the object should not be rotated by 90 degrees.</td>
</tr>
</tbody>
</table>

In elements <array>, <boxed-text>, <chem-struct-wrap>, <code>, <fig>, <fig-group>, <graphic>, <media>, <preformat>, <supplementary-material>, <table-wrap>, and <table-wrap-group>, this attribute will be assigned the value portrait by default.

9.5.78 @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”.

### 9.5.79 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>allauthors</td>
<td>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.</td>
</tr>
<tr>
<td>assignee</td>
<td>Persons to whom a patent is awarded.</td>
</tr>
<tr>
<td>author</td>
<td>Content creators.</td>
</tr>
<tr>
<td>compiler</td>
<td>Persons who put together a composite work from multiple sources.</td>
</tr>
<tr>
<td>curator</td>
<td>Person or group responsible for data curation or archival curation</td>
</tr>
<tr>
<td>director</td>
<td>Directors.</td>
</tr>
<tr>
<td>editor</td>
<td>Content editors.</td>
</tr>
<tr>
<td>guest-editor</td>
<td>Content editors that have been invited to edit all or part of a work.</td>
</tr>
<tr>
<td>inventor</td>
<td>Idea, software, or machine creators.</td>
</tr>
<tr>
<td>transed</td>
<td>Editors of a translated version of a work.</td>
</tr>
<tr>
<td>translator</td>
<td>Persons who translated the cited work from one language into another.</td>
</tr>
</tbody>
</table>

### 9.5.80 @platforms Platforms
Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word “name”, and multiple platform names will be separated by spaces.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Platform on which the <code>&lt;code&gt;</code> is intended to run, for example, “Mac OSX”.</td>
</tr>
</tbody>
</table>

### 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>`, `<code>`, `<fig>`, `<fig-group>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, `<table-wrap>`, and `<table-wrap-group>`, this attribute will be assigned the value `float` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>anchor</td>
<td>The object must remain in its exact location in the text flow.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>background</td>
<td>The object (typically an image) is used as background displayed visually “behind” the narrative text.</td>
</tr>
<tr>
<td>float</td>
<td>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.</td>
</tr>
<tr>
<td>margin</td>
<td>In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 9.5.83 @preformat-type Type of Preformatted Text

Type of content contained in the `<preformat>` element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A word or phrase that describes the content or names the type of content for the <code>&lt;preformat&gt;</code> element, for example, “code” for sample computer code or “xml” for an XML-tagged data sample.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of product being reviewed, for example, “website” or “videogame”.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>accession</td>
<td>(bioinformatics) a unique identifier given to a DNA or protein sequence record for tracking the sequence record and the associated sequence over time in a data repository.</td>
</tr>
<tr>
<td>ark</td>
<td>Archival Resource Key — a Uniform Resource Locator (URL) containing the word &quot;ark&quot; that is a multi-purpose identifier for information objects of any type</td>
</tr>
<tr>
<td>art-access-id</td>
<td>Generic article accession identifier for interchange and retrieval between archives.</td>
</tr>
<tr>
<td>arxiv</td>
<td>arXiv archive of electronic preprints.</td>
</tr>
<tr>
<td>coden</td>
<td>Obsolete PDB/CCDC identifier (may be present on older articles).</td>
</tr>
<tr>
<td>doaj</td>
<td>Directory of Open Access Journals.</td>
</tr>
<tr>
<td>doi</td>
<td>Digital Object Identifier.</td>
</tr>
<tr>
<td>handle</td>
<td>Handle identifier, part of the Handle System for assigning, managing, and resolving persistent identifiers for digital objects and other resources on the Internet</td>
</tr>
<tr>
<td>isbn</td>
<td>International Standard Book Number.</td>
</tr>
<tr>
<td>manuscript</td>
<td>Identifier assigned to a manuscript.</td>
</tr>
<tr>
<td>medline</td>
<td>NLM Medline identifier.</td>
</tr>
<tr>
<td>other</td>
<td>None of the named identifiers in this list.</td>
</tr>
<tr>
<td>pii</td>
<td>The original “Publisher Item Identifier” (PII) was a system to provide unique and concise identification for individual published documents with a highly specified string. The PII specification is no longer in common use (2010).</td>
</tr>
<tr>
<td>pmcid</td>
<td>PubMed Central identifier.</td>
</tr>
<tr>
<td>publisher-id</td>
<td>Publisher’s identifier, such as an “article-id”, “artnum”, “identifier”, “article-number”, “pub-id”, etc.</td>
</tr>
<tr>
<td>sici</td>
<td>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.).</td>
</tr>
<tr>
<td>std-designation</td>
<td>The official number of a standard, from a standards body such as ISO, NISO, IEEE, ASME, et al., for example, “Z39.96-2015”.</td>
</tr>
</tbody>
</table>

In elements `<issue-id>`, `<object-id>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of identifier “doi” or name or type of organization that created the identifier “aggregator”.</td>
</tr>
</tbody>
</table>

**9.5.86 @publication-format Format of Publication**

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

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date,
- to describe the format/medium for an ISSN or ISBN, and
- to name the format/medium of the document being cited as part of a bibliographic reference.
For use in Dates: In 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>, <isbn>, <issn>, <mixed-citation>, <nlm-citation>, and <pub-date>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The cited format, for example, “print”.</td>
</tr>
</tbody>
</table>

9.5.87 @publication-type Type of Referenced Publication


In elements <element-citation>, <mixed-citation>, and <nlm-citation>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of publication, for example, “book”, “journal” (for a journal article), “patent”, or “data” (for a dataset, database, spreadsheet, et al.).</td>
</tr>
</tbody>
</table>

9.5.88 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of publisher, for example, “government”.</td>
</tr>
</tbody>
</table>

9.5.89 @pub-type Type of Publication

Deprecated: On the element <pub-date>, in the Archiving and Publishing Tag Sets, this @pub-type attribute is deprecated in favor of the @publication-format and @date-type attributes. In all Tag Sets, on the element <issn>, this @pub-type attribute is deprecated in favor of the @publication-format attribute (possibly with the @content-type attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

Definition: Deprecated pre-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 publication in print.

The pre-combination of format, medium, and event 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of print or electronic publication, for example, “epub” for electronic publication.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The reason for a milestone or information about an object that cannot be modeled using the regular hierarchy.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>aff</td>
<td>Affiliation.</td>
</tr>
<tr>
<td>app</td>
<td>Appendix.</td>
</tr>
<tr>
<td>author-notes</td>
<td>Author notes.</td>
</tr>
<tr>
<td>bibr</td>
<td>Bibliographic reference (typically to a <code>&lt;ref&gt;</code> element, but it may point to a <code>&lt;element-citation&gt;</code> or <code>&lt;mixed-citation&gt;</code> if there are multiple citations inside the <code>&lt;ref&gt;</code> element).</td>
</tr>
<tr>
<td>boxed-text</td>
<td>Textbox or sidebar.</td>
</tr>
<tr>
<td>chem</td>
<td>Chemical structure (to a <code>&lt;chem-struct&gt;</code> or <code>&lt;chem-struct-wrap&gt;</code> element).</td>
</tr>
<tr>
<td>contrib</td>
<td>Contributor.</td>
</tr>
<tr>
<td>collab</td>
<td>Collaboration.</td>
</tr>
<tr>
<td>corresp</td>
<td>Corresponding author.</td>
</tr>
<tr>
<td>disp-formula</td>
<td>Display formula.</td>
</tr>
<tr>
<td>fig</td>
<td>Figure or group of figures (to a <code>&lt;fig&gt;</code> or <code>&lt;fig-group&gt;</code> element).</td>
</tr>
<tr>
<td>fn</td>
<td>Footnote.</td>
</tr>
<tr>
<td>kwd</td>
<td>Keyword.</td>
</tr>
<tr>
<td>list</td>
<td>List or list item (to a <code>&lt;list&gt;</code> or <code>&lt;list-item&gt;</code> element; also, possibly to a <code>&lt;def-list&gt;</code> or <code>&lt;def-item&gt;</code> element).</td>
</tr>
<tr>
<td>other</td>
<td>None of the items listed.</td>
</tr>
<tr>
<td>plate</td>
<td>Plate.</td>
</tr>
<tr>
<td>scheme</td>
<td>Scheme.</td>
</tr>
<tr>
<td>sec</td>
<td>Section.</td>
</tr>
<tr>
<td>statement</td>
<td>Statement.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>supplementary-material</td>
<td>Supplementary information.</td>
</tr>
<tr>
<td>table</td>
<td>Table or group of tables (to a \texttt{&lt;table-wrap&gt;} or \texttt{&lt;table-wrap-group&gt;} element).</td>
</tr>
<tr>
<td>table-fn</td>
<td>Table footnote.</td>
</tr>
</tbody>
</table>

### 9.5.92 \texttt{@related-article-type} Type of Related Article

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

The \texttt{<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 \texttt{<related-article>}, this attribute \textit{must} be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The article type for the related article, for example, “addendum”.</td>
</tr>
</tbody>
</table>

### 9.5.93 \texttt{@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 \texttt{<glyph-data>}, this attribute \textit{may} be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decimal integer</td>
<td>The number of dots per inch of the bitmap.</td>
</tr>
</tbody>
</table>

### 9.5.94 \texttt{@response-type} Type of Response

Type of response (\texttt{<response>}); parallels \texttt{@article-type}.

In element \texttt{<response>}, this attribute \textit{may} be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of response as described by the publisher, for example, “discussion”.</td>
</tr>
</tbody>
</table>

### 9.5.95 \texttt{@rid} Reference to an Identifier

Value of the identifier of an associated element; used for linking related elements (for example, \texttt{<term>} to a \texttt{<def>}, \texttt{<bio>} to a \texttt{<contrib>}).

In elements \texttt{<milestone-end>} and \texttt{<milestone-start>}, this attribute \textit{may} be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

In elements \texttt{<aff>}, \texttt{<author-notes>}, \texttt{<award-group>}, \texttt{<award-id>}, \texttt{<bio>}, \texttt{<contrib>}, \texttt{<def>}, \texttt{<funding-source>}, \texttt{<funding-statement>}, \texttt{<named-content>}, \texttt{<sig>}, \texttt{<sig-block>}, \texttt{<term>}, and \texttt{xref}, this attribute \textit{may} be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to one or more existing identifiers.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A counting number</td>
<td>How many rows this cell will span vertically, for example, “3”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Rules on all rows and columns.</td>
</tr>
<tr>
<td>cols</td>
<td>Rules between columns.</td>
</tr>
<tr>
<td>groups</td>
<td>Rules between groups.</td>
</tr>
<tr>
<td>none</td>
<td>No rules in table.</td>
</tr>
<tr>
<td>rows</td>
<td>Rules between rows.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>col</td>
<td>Provides header information for the rest of a column.</td>
</tr>
<tr>
<td>colgroup</td>
<td>Provides header information for the rest of a column group (i.e., the remaining cells within the <code>&lt;colgroup&gt;</code> element).</td>
</tr>
<tr>
<td>row</td>
<td>Provides header information for the rest of a row.</td>
</tr>
<tr>
<td>rowgroup</td>
<td>Provides header information for the rest of a row group (i.e., the remaining cells of the current <code>&lt;thead&gt;</code>, <code>&lt;tfoot&gt;</code>, or <code>&lt;tbody&gt;</code>).</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or</td>
<td>The number of the document in a sequence of documents within a volume,</td>
</tr>
<tr>
<td>special</td>
<td>issue, electronic compilation, or even on the same page. For example,</td>
</tr>
<tr>
<td>characters</td>
<td>for continuous-makeup journals that start more than one article on the</td>
</tr>
<tr>
<td></td>
<td>same page, this attribute indicates a sequence number or letter for one</td>
</tr>
<tr>
<td></td>
<td>of the articles, such as “a”, “b”, “c”; or “1”, “2”, “3”. For example,</td>
</tr>
<tr>
<td></td>
<td>a value of “2” could mean “554-2”, page 554, second article.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or</td>
<td>The identifier of the source for the &lt;related-object&gt;.</td>
</tr>
<tr>
<td>special</td>
<td></td>
</tr>
<tr>
<td>characters</td>
<td></td>
</tr>
</tbody>
</table>

9.5.102 @source-id-type Source Identifier Type

Type of source identifier (for example, a DOI, ISSN, ISBN, or publisher’s identifier) for a <related-object>.

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The type of identifier</td>
<td>The type of document identifier named in the @source-id attribute for a</td>
</tr>
<tr>
<td>that names the</td>
<td>(&lt;related-object&gt;) element. This attribute qualifies the @source-id</td>
</tr>
<tr>
<td>source of the related</td>
<td>attribute.</td>
</tr>
<tr>
<td>object, for example,</td>
<td></td>
</tr>
<tr>
<td>a DOI.</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or</td>
<td>Type of entity (such as an organization or an individual) that is the</td>
</tr>
<tr>
<td>special</td>
<td>source of an award which sponsors a work or the research underlying the</td>
</tr>
<tr>
<td>characters</td>
<td>work.</td>
</tr>
</tbody>
</table>
In element `<related-object>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type of object that is the source of the related object (&lt;related-object&gt;), for example, “book”.</td>
</tr>
</tbody>
</table>

**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 XHMl span attribute.)

In elements `<col>` and `<colgroup>`, this attribute will be assigned the value 1 by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A counting number</td>
<td>How many columns will have the same attributes, for example, “3”.</td>
</tr>
</tbody>
</table>

**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>`, `<all:free_to_read>`, `<all:license_ref>`, `<alt-text>`, `<alt-title>`, `<annotation>`, `<anonymous>`, `<app>`, `<app-group>`, `<array>`, `<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>`, `<data-title>`, `<date>`, `<date-in-citation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elocation-id>`, `<email>`, `<era>`, `<etal>`, `<ext-link>`, `<fax>`, `<fig>`, `<fig-group>`, `<fixed-case>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issn-l>`, `<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>
In elements <ali:free_to_read> and <ali:license_ref>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document starts being free-to-read or begins the given license.</td>
</tr>
</tbody>
</table>

### 9.5.106 @start_date Start Date

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, Access License and Indicators.

In elements <ali:free_to_read> and <ali:license_ref>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific distinction in the applicability of a particular element, for example, &quot;print-only&quot;.</td>
</tr>
</tbody>
</table>

### 9.5.107 @style Style (NISO JATS table model; MathML Tag Set)

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), 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

In elements <caption>, <col>, <colgroup>, <table>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the markup style for one of the elements within a table or for the entire table.</td>
</tr>
</tbody>
</table>

In element <styled-content>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the inline markup style for the element.</td>
</tr>
</tbody>
</table>
9.5.108 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name or description for the stylistic type, for example, “green background”.</td>
</tr>
</tbody>
</table>

9.5.109 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type of subject.</td>
</tr>
</tbody>
</table>

9.5.110 @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 XHTML `summary` attribute.)

In element `<table>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Textual description of the contents of a table, intended to be read to the audience for the table.</td>
</tr>
</tbody>
</table>

9.5.111 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type or reason for the supplement, for example, “conference” or “issue”.</td>
</tr>
</tbody>
</table>

9.5.112 @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 elements `<collab>` and `<fn>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The symbol used to mark a footnote, such as a dagger “†”.</td>
</tr>
</tbody>
</table>

9.5.113 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names/describes the rationale for designating a portion of text for cross-reference.</td>
</tr>
</tbody>
</table>

9.5.114 **@toggle Toggle Switch**

Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element `<italic>`, this attribute will be assigned the value `yes` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In element `<roman>`, this attribute will be assigned the value `no` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the same emphasis, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In elements `<bold>`, `<monospace>`, `<overline>`, `<sans-serif>`, `<sc>`, `<strike>`, `<styled-content>`, and `<underline>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the same emphasis, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

9.5.115 **@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The style of underlining requested; for example, “double” would mean underlined by two rules, very close together.</td>
</tr>
</tbody>
</table>

9.5.116 **@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.
### 9.5.117 @valign Vertical Alignment (NISO JATS table model)

Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHTML `valign` attribute.)

In elements `<col>, <colgroup>, <tbody>, <tfoot>, <thead>, and <tr>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>baseline</td>
<td>All cells in the same row as a cell whose <code>valign</code> 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.</td>
</tr>
<tr>
<td>bottom</td>
<td>Cell data is flush with the bottom of the cell.</td>
</tr>
<tr>
<td>middle</td>
<td>Cell data is centered vertically within the cell.</td>
</tr>
<tr>
<td>top</td>
<td>Cell data is flush with the top of the cell.</td>
</tr>
</tbody>
</table>

### 9.5.118 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Version of TeX or LaTeX used in the equation.</td>
</tr>
</tbody>
</table>

### 9.5.119 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 9.5.120 @width Width (NISO JATS table model)

This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements `<col>, <colgroup>, and <table>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Within the NISO JATS Table model, 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.</td>
</tr>
</tbody>
</table>
### 9.5.121 @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>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<funding-source>`, `<graphic>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>onLoad</td>
<td>An application should retrieve the link at the same time a user obtains the initial document.</td>
</tr>
<tr>
<td>onRequest</td>
<td>An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.</td>
</tr>
<tr>
<td>other</td>
<td>The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
</tbody>
</table>

### 9.5.122 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (a URL) to a resource.</td>
</tr>
</tbody>
</table>

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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (a URL) to a resource.</td>
</tr>
</tbody>
</table>

### 9.5.123 @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>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<funding-source>`, `<graphic>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`,
9.5.124 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>embed</td>
<td>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.</td>
</tr>
<tr>
<td>new</td>
<td>The link should be displayed as a new, separate window, frame, pane, or other presentation context.</td>
</tr>
<tr>
<td>none</td>
<td>The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>other</td>
<td>The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>replace</td>
<td>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.</td>
</tr>
</tbody>
</table>

9.5.125 @xlink:title Title of the Link
Describes the function of a link’s remote resource in human-readable fashion.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A descriptive, human-readable title that acts as a brief description of the link.</td>
</tr>
</tbody>
</table>

9.5.126 @xlink:type Type of Link
The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word “simple”, which means that the link is a simple, one-ended link.
In elements `<abbrev>`, `<award-group>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<custom-meta>`, `<element-citation>`, `<email>`, `<ext-link>`, `<funding-source>`, `<graphic>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<url>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple</td>
<td>The link is an XML simple (one-ended) link.</td>
</tr>
</tbody>
</table>

### 9.5.127 `@xml:base`

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an `@xml:base` of "http://jats.nlm.nih.gov/", a URI inside the document of "publishing/rationale.html" would be processed as if it were "http://jats.nlm.nih.gov/publishing/rationale.html". Values of `@xml:base` are inherited; meaning that if there is an `@xml:base` on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.
9.5.128 `@xml:lang` Language

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

The value of this attribute must conform to IETF RFC 5646 (http://tools.ietf.org/html/rfc5646). For most uses, a primary-language subtag such as "fr" (French), "en" (English), "de" (German), or "zh" (Chinese) is sufficient. These values are NOT case sensitive, but current best practice uses all lower case. In addition to the primary language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: http://www.iana.org/assignments/language-subtag-registry.

In element `<article>`, this attribute will be assigned the value `en` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>
investigator>, <product>, <pub-date>, <publisher-loc>, <publisher-name>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <response>, <role>, <rt>, <season>, <sec>, <self-uri>, <series>, <series-text>, <series-title>, <sig>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-date>, <string-name>, <styled-content>, <sub-article>, <subj-group>, <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>, <version>, <volume>, <volume-id>, <volume-issue-group>, <volume-series>, <xref>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>

### 9.5.129 @xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO Access License and Indicators) elements. All namespace prefixes must be associated with a URL, and the prefix “ali” has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices recommendation.

In elements <ali:free_to_read>, <ali:license_ref>, and <article>, this attribute must have the value http://www.niso.org/schemas/ali/1.0/ (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.niso.org/schemas/ali/1.0/">http://www.niso.org/schemas/ali/1.0/</a></td>
<td>The URI named in the NISO Access License and Indicators for the ALI elements.</td>
</tr>
</tbody>
</table>

### 9.5.130 @xmlns:mml MathML Namespace Declaration

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix “mml” has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same URL is the same for both MathML 2.0 and MathML 3.0.

In elements <article> and <mml:math>, this attribute must have the value http://www.w3.org/1998/Math/MathML (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1998/Math/MathML">http://www.w3.org/1998/Math/MathML</a></td>
<td>The prefix “mml” has been set to the URL for the W3C MathML Tag Set.</td>
</tr>
</tbody>
</table>

### 9.5.131 @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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1999/xlink">http://www.w3.org/1999/xlink</a></td>
<td>The prefix “xlink” has been set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>
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>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>,
<named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>,
<related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>,
this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/1999/xlink">http://www.w3.org/1999/xlink</a></td>
<td>When this attribute is used, the prefix “xlink” should be set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>

9.5.132 @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 @xsi_schemaLocation attribute an included vocabulary requires. 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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/2001/XMLSchema-instance">http://www.w3.org/2001/XMLSchema-instance</a></td>
<td>The prefix “xsi” has been set to the URL of the W3C XML Schema.</td>
</tr>
</tbody>
</table>

9.5.133 @xml:space Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements <code>, <glyph-data>, and <preformat>, this attribute must have the value preserve (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>preserve</td>
<td>White space should be preserved. (This value is fixed and cannot be changed in a document.).</td>
</tr>
</tbody>
</table>

9.5.134 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number</td>
<td>An integer number of pixels, for example, “45”, that is the number of pixels in each row of the bitmap of the &lt;glyph-data&gt; element.</td>
</tr>
</tbody>
</table>

9.5.135 @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.
10 Article Authoring Tag Set, version 1.1

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.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - <def> Definition List: Definition

10.4.2 <abstract> Abstract
Summarized description of the content of a document or document component.

Attributes:
- @abstract-type Type of Abstract
- @id Document Internal Identifier
10.4.3 <access-date> Access Date for Cited Work
This element is deprecated; avoid using it. Use <date-in-citation>.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.4 <ack> Acknowledgments
Textual material that names the parties who the author wishes to thank or recognize for their assistance in, for
example, producing the work, funding the work, inspiring the work, or assisting in the research on which the work is
based.

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

Content model:
The following, in order:
• <title> Title, zero or one
• <p> Paragraph, zero or more

10.4.5 <addr-line> Address Line
One physical or logical line of an address.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
10.4.6 <address> Address/Contact Information

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

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

Content model:
The following, in order:
- Any combination of:
  - <institution> Institution Name: in an Address
  - <institution-wrap> Institution Wrapper
  - <addr-line> Address Line, zero or more
  - <city> City, zero or one
  - <state> State or Province, zero or one
  - <postal-code> Postal Code, zero or one
  - <country> Country: in an Address
  - <phone> Phone Number: in an Address, zero or more
  - <fax> Fax Number: in an Address, zero or more
  - Linking Elements
    - <email> Email Address, zero or more
    - <ext-link> External Link, zero or more
    - <uri> Uniform Resource Identifier (URI), zero or more

10.4.7 <aff> Affiliation

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Address Elements
• <addr-line> Address Line
• <city> City
• <country> Country: in an Address
• <fax> Fax Number: in an Address
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper
• <phone> Phone Number: in an Address
• <postal-code> Postal Code
• <state> State or Province

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

• <break> Line Break

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

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

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

10.4.8 <aff-alternatives> Affiliation Alternatives
Container element to hold two or more representations of a single affiliation (for example, the name of a university in two or more languages such as both German and English).

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

Content model:
<aff> Affiliation, one or more

10.4.9 <ali:free_to_read> Free to Read (NISO Access License and Indicators)
A flag indicating that the document content can be read or viewed at its current location by any user without payment or authentication.

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

Content model:
This is an EMPTY element
10.4.10 <ali:license_ref> License Reference (NISO Access License and Indicators)
A reference to a URI that carries the license terms specifying how a work may be used.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@start_date Start Date
@xml:base Base
@xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)
Content model:
Text, numbers, or special characters

10.4.11 <alt-text> Alternate Text Name (for a figure, etc.)
Word or phrase used to provide a very short textual name, description, or purpose-statement for a structure such as a graphic or figure.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Text, numbers, or special characters

10.4.12 <alternatives> Alternatives For Processing
Container element used to hold a group of processing alternatives, for example, a single <graphic> that ships in several formats (tif, gif, and jpeg) or in different resolutions. This element is a physical grouping to contain multiple logically equivalent (substitutable) versions of the same information object. Typically these are processing alternatives, and the reader is expected to see only one version of the object.
Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:
One or more of any of:
• <chem-struct> Chemical Structure (Display)
• <code> Code
• <graphic> Graphic
• Inline Display Elements
  • <inline-graphic> Graphic, Inline
• <inline-supplementary-material> Inline Supplementary Material Metadata
• <media> Media Object
• <preformat> Preformatted Text
• <private-char> Private Character (Custom or Unicode)
• <supplementary-material> Supplementary Material Metadata
• <table> Table (NISO JATS table model)
• <textual-form> Textual Form
• Math Element
  • <mml:math> Math (MathML Tag Set)

10.4.13 <annotation> Annotation in a Citation
Commentary, summary, review, or similar non-bibliographic information concerning the cited work.
10.4.14 <anonymous> Anonymous

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

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

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

10.4.15 <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 Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- The following, in order:
  - <title> Title
  - Any combination of:
    - Paragraph-level Display Elements
    - <boxed-text> Boxed Text
    - <chem-struct-wrap> Chemical Structure Wrapper
    - <code> Code
    - <fig> Figure
    - <graphic> Graphic
    - <media> Media Object
    - <preformat> Preformatted Text
    - <supplementary-material> Supplementary Material Metadata
    - <table-wrap> Table Wrapper
    - <disp-formula> Formula, Display
    - <disp-formula-group> Formula, Display Group
    - Lists
      - <def-list> Definition List
      - <list> List
    - <p> Paragraph
    - <disp-quote> Quote, Displayed
    - <speech> Speech
    - <statement> Statement, Formal
    - <verse-group> Verse Form for Poetry
  - <sec> Section, zero or more
10.4.16 <app-group> Appendix Group
Container element for one or more appendices (<app> elements).

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

Content model:
The following, in order:
- <title> Title, zero or one
- <p> Paragraph, zero or more
- <app> Appendix, zero or more

10.4.17 <article> Article
A journal article.

Attributes:
- @article-type Type of Article
- @dtd-version Version of the Tag Set (DTD)
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
- @xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)
- @xmlns:mml MathML Namespace Declaration
- @xmlns:xlink XLink Namespace Declaration
- @xmlns:xsi XML Schema Namespace Declaration

Content model:
The following, in order:
- <front> Front Matter
- <body> Body of the Document
- <back> Back Matter, zero or one

10.4.18 <article-meta> Article Metadata
Container element for information concerning the article that identifies or describes the article.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- <title-group> Title Group
- <contrib-group> Contributor Group
- Any combination of:
  - <product> Product Information
  - <supplementary-material> Supplementary Material Metadata
  - <permissions> Permissions, zero or one
  - <self-uri> URI for This Same Article Online, zero or more
- Any combination of:
  - Related Material Elements
    - <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

10.4.19 <article-title> Article Title
Full title of an article.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <chem-struct> Chemical Structure (Display)
  ◦ <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <abbr> 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <break> Line Break

10.4.20 <attrib> Attribution
Container element for information concerning the origin of an extract, display quote, poetry, or similar element.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
10.4.21 <author-comment> Author Comment

Textual material associated with a contributor.

Attributes:

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

Content model:
The following, in order:

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

10.4.22 <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 Document Internal Identifier
@rid Reference to an Identifier
@specific-use Specific Use
+xlink:actuate Actuating the Link
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

**10.4.23 `<award-id>` Award Identifier**
Unique identifier assigned to an award, contract, or grant.

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

Content model:
Text, numbers, or special characters, zero or more

**10.4.24 `<back>` Back Matter**
Material published with an article but following the narrative flow.

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:
The following, in order:
- `<ack>` Acknowledgments, zero or one
- `<glossary>` Glossary Elements List, zero or one
- `<ref-list>` Reference List (Bibliographic), zero or more
- `<app-group>` Appendix Group, zero or one

**10.4.25 `<bio>` Biography**
Biographical data concerning a contributor or the description of a collaboration.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @rid Reference to an Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration
Content model:
The following, in order:
- `<title>` Title, zero or one
- Any combination of:
  - Paragraph-level Display Elements
    - `<boxed-text>` Boxed Text
    - `<chem-struct-wrap>` Chemical Structure Wrapper
    - `<code>` Code
    - `<fig>` Figure
    - `<graphic>` Graphic
    - `<media>` Media Object
    - `<preformat>` Preformatted Text
    - `<supplementary-material>` Supplementary Material Metadata
    - `<table-wrap>` Table Wrapper
  - `<disp-formula>` Formula, Display
  - `<disp-formula-group>` Formula, Display Group
  - Lists
    - `<def-list>` Definition List
    - `<list>` List
  - `<p>` Paragraph
  - `<disp-quote>` Quote, Displayed
  - `<speech>` Speech
  - `<statement>` Statement, Formal
  - `<verse-group>` Verse Form for Poetry
- `<sec>` Section, zero or more

10.4.26 `<body>` Body of the Document
Main textual portion of the document that conveys the narrative content.

Attributes:
- `@id` Document Internal Identifier
- `@xml:base` Base

Content model:
The following, in order:
- Any combination of:
  - Paragraph-level Display Elements
    - `<boxed-text>` Boxed Text
    - `<chem-struct-wrap>` Chemical Structure Wrapper
    - `<code>` Code
    - `<fig>` Figure
    - `<graphic>` Graphic
    - `<media>` Media Object
    - `<preformat>` Preformatted Text
    - `<supplementary-material>` Supplementary Material Metadata
    - `<table-wrap>` Table Wrapper
  - `<disp-formula>` Formula, Display
  - `<disp-formula-group>` Formula, Display Group
  - Lists
    - `<def-list>` Definition List
    - `<list>` List
  - `<p>` Paragraph
  - `<disp-quote>` Quote, Displayed
  - `<speech>` Speech
  - `<statement>` Statement, Formal
  - `<verse-group>` Verse Form for Poetry
- `<sec>` Section, zero or more

10.4.27 `<bold>` Bold
Used to mark text that should appear in bold face.
10.4.28 <boxed-text> Boxed Text

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

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@xml:base Base

Content model:
The following, in order:
• <object-id> Object Identifier, zero or more
• <caption> Caption of a Figure, Table, etc., zero or one
• Any combination of:
  ◦ Paragraph-level Display Elements
    ▪ <boxed-text> Boxed Text
    ▪ <chem-struct-wrap> Chemical Structure Wrapper
    ▪ <code> Code
    ▪ <fig> Figure
    ▪ <graphic> Graphic
    ▪ <media> Media Object
    ▪ <preformat> Preformatted Text
    ▪ <supplementary-material> Supplementary Material Metadata
    ▪ <table-wrap> Table Wrapper
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
  ◦ Lists
    ▪ <def-list> Definition List
    ▪ <list> List
  ◦ <p> Paragraph
  ◦ <disp-quote> Quote, Displayed
  ◦ <speech> Speech
  ◦ <statement> Statement, Formal
    ▪ <verse-group> Verse Form for Poetry
  ◦ <sec> Section, zero or more
  ◦ Ownership Elements
    ▪ <attrib> Attribution, zero or one
    ▪ <permissions> Permissions, zero or one

10.4.29 <break> Line Break
An explicit line break in the text.

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

Content model:
This is an EMPTY element

10.4.30 <caption> Caption of a Figure, Table, etc.
Container element for the textual description that is associated with an object (for example, with a <fig> or <table-wrap>).

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

Content model:
The following, in order:
  • <title> Title, zero or one
  • <p> Paragraph, zero or more

10.4.31 <chapter-title> Chapter Title in a Citation
Title of a cited book chapter.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.32 <chem-struct> Chemical Structure (Display)
Chemical expression, reaction, equation, etc. that is set apart within the text.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
  ◦ <alt-text> Alternate Text Name (for a figure, etc.)
  ◦ <long-desc> Long Description
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <break> Line Break
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
10.4.33 <chem-struct-wrap> Chemical Structure Wrapper

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

Attributes:

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

Content model:

The following, in order:

- <object-id> Object Identifier, zero or more
- <caption> Caption of a Figure, Table, etc., zero or one

Any combination of:

- Accessibility Elements
  - <alt-text> Alternate Text Name (for a figure, etc.)
  - <long-desc> Long Description

- One or more of any of:
  - <alternatives> Alternatives For Processing
  - <chem-struct> Chemical Structure (Display)
  - <code> Code
  - <graphic> Graphic
  - <media> Media Object
  - <preformat> Preformatted Text
  - <textual-form> Textual Form

Ownership Elements

- <attrib> Attribution, zero or one
- <permissions> Permissions, zero or one

10.4.34 <citation-alternatives> Citation Alternatives

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

Attributes:

- @id Document Internal Identifier
- @xml:base Base
Content model:
One or more of any of:
  • <element-citation> Element Citation
  • <mixed-citation> Mixed Citation
  • <nlm-citation> NLM Citation

10.4.35 <city> City
The name of a city.

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

Content model:
Text, numbers, or special characters, zero or more

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

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

Content model:
Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    ◦ <email> Email Address
    ◦ <ext-link> External Link
    ◦ <uri> Uniform Resource Identifier (URI)
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <roman> Roman
    ◦ <sans-serif> Sans Serif
    ◦ <sc> Small Caps
    ◦ <strike> Strike Through
    ◦ <underline> Underline
    ◦ <ruby> Ruby Annotation Wrapper
  • Other Inline Elements
    ◦ <abbrev> Abbreviation or Acronym
    ◦ <named-content> Named Special (Subject) Content
10.4.37 <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` Document Internal Identifier
- `@span` Span (NISO JATS table model)
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@valign` Vertical Alignment (NISO JATS table model)
- `@width` Width (NISO JATS table model)
- `@xml:base` Base

Content model:
This is an EMTPY element

10.4.38 <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 colgroup element.)

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

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

10.4.39 <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` Document Internal Identifier
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• Address Elements
  ◦ <addr-line> Address Line
  ◦ <city> City
  ◦ <country> Country: in an Address
  ◦ <fax> Fax Number: in an Address
  ◦ <institution> Institution Name: in an Address
  ◦ <institution-wrap> Institution Wrapper
  ◦ <phone> Phone Number: in an Address
  ◦ <postal-code> Postal Code
  ◦ <state> State or Province
• <address> Address/Contact Information
• <aff> Affiliation
• <aff-alternatives> Affiliation Alternatives
• <author-comment> Author Comment
• <bio> Biography
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <on-behalf-of> On Behalf of
• <role> Role or Function Title of Contributor
• <xref> X (cross) Reference

10.4.40 <collab-alternatives> Collaboration Alternatives
Wrapper element for more than one version of a single collaboration, such as the name of a laboratory in more than one language, for example, a laboratory name in Japanese Kana characters and a transliterated form of the laboratory name in the Latin alphabet.

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

Content model:
<collab> Collaborative (Group) Author, one or more
10.4.41 <comment> Comment in a Citation

Container element for unstructured text within a bibliographic reference.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospaced Text (Typewriter Text)
    - <overline> Overline
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
  - Inline Display Elements
    - <inline-graphic> Graphic, Inline
  - <chem-struct> Chemical Structure (Display)
  - <inline-formula> Formula, Inline
  - Other Inline Elements
    - <abbrev> Abbreviation or Acronym
    - <named-content> Named Special (Subject) Content
    - <styled-content> Styled Special (Subject) Content
  - Baseline Change Elements
    - <sub> Subscript
    - <sup> Superscript

10.4.42 <compound-kwd> Compound Keyword

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

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

Content model:
- <compound-kwd-part> Compound Keyword Part, one or more

10.4.43 <compound-kwd-part> Compound Keyword Part

Individual component of a multi-part keyword (for example, a code, the code’s meaning).
10.4.44 <conf-acronym> Conference Acronym

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

Attributes:

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

Content model:

Text, numbers, or special characters, zero or more

10.4.45 <conf-date> Conference Date

Date(s) on which a conference was held.

Attributes:

- @calendar Calendar
- @content-type Type of Content
- @id Document Internal Identifier
- @iso-8601-date ISO-8601 Formatted Date
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language
Content model:
Text, numbers, or special characters, zero or more

10.4.46 <conf-loc> Conference Location
Physical location(s) of a conference (for example, city, country, campus, organization location).
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Address Elements
  ° <addr-line> Address Line
  ° <city> City
  ° <country> Country: in an Address
  ° <fax> Fax Number: in an Address
  ° <institution> Institution Name: in an Address
  ° <institution-wrap> Institution Wrapper
  ° <phone> Phone Number: in an Address
  ° <postal-code> Postal Code
  ° <state> State or Province

10.4.47 <conf-name> Conference Name
Full name of a conference, including any qualifiers such as “43rd Annual”.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Text, numbers, or special characters, zero or more

10.4.48 <conf-num> Conference Number
Sequential number of a conference.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Text, numbers, or special characters, zero or more

10.4.49 <conf-sponsor> Conference Sponsor
One organization identified as a sponsor of a conference.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
Content model:
Any combination of:
• Text, numbers, or special characters
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper

10.4.50 <conf-theme> Conference Theme
Theme, slogan, or major subject area of a conference.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <abbrev> Abbreviation or Acronym
  ◦ <named-content> Named Special (Subject) Content
  ◦ <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.51 <conference> Conference Information
Container element to contain information about a single conference and its proceedings.

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

Content model:
The following, in order:
• <contrib-id> Contributor Identifier, zero or more
• Any combination of:
  ◦ Contributor Naming Elements
    ◦ <anonymous> Anonymous
    ◦ <collab> Collaborative (Group) Author
    ◦ <collab-alternatives> Collaboration Alternatives
    ◦ <name> Name of Person
    ◦ <name-alternatives> Name Alternatives
  ◦ <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
• Linking Elements
  ◦ <email> Email Address, zero or more
  ◦ <ext-link> External Link, zero or more
  ◦ <uri> Uniform Resource Identifier (URI), zero or more
• <bio> Biography, zero or one
• <author-comment> Author Comment, zero or one
10.4.53 <contrib-group> Contributor Group

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

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

Content model:
- <contrib> Contributor, one or more

10.4.54 <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 (Japan Science and Technology Agency) identifier, or an NII (National Individual Identifier).

Attributes:
- @authenticated Authenticated
- @content-type Type of Content
- @contrib-id-type Contributor Identifier Type
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Text, numbers, or special characters

10.4.55 <copyright-holder> Copyright Holder

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

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - <institution> Institution Name: in an Address
  - <institution-wrap> Institution Wrapper
  - Baseline Change Elements
    - <sub> Subscript
    - <sup> Superscript

10.4.56 <copyright-statement> Copyright Statement

Copyright notice or statement, suitable for printing or display.

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

Content model:
- Any combination of:
10.4.57 <copyright-year> Copyright Year
The year of copyright.

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

Content model:
Text, numbers, or special characters

10.4.58 <country> Country: in an Address
Country name used within an address.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.59 <data-title> Data Title
The formal title or name of a cited data source (or a component of a cited data source) such as a dataset or spreadsheet.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ° <email> Email Address
  ° <ext-link> External Link
  ° <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ° <bold> Bold
  ° <fixed-case> Fixed Case
  ° <italic> Italic
  ° <monospace> Monospace Text (Typewriter Text)
  ° <overline> Overline
  ° <roman> Roman
  ° <sans-serif> Sans Serif
  ° <sc> Small Caps
  ° <strike> Strike Through
  ° <underline> Underline
  ° <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ° <sub> Subscript
  ° <sup> Superscript

10.4.60 <date> Date
Container element for the parts of a single calendar date.

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

Content model:
The following, in order:
• Optionally any one of:
  ° The following, in order:
    ° <day> Day, zero or one
    ° <month> Month, zero or one
  ° <season> Season
  ° <year> Year
  ° <era> Era of Time, zero or one

10.4.61 <date-in-citation> Date within a Citation
Non-publication date used within a bibliographic reference. Replaces deprecated elements <access-date> and <time-stamp>.

Attributes:
  @calendar Calendar
  @content-type Type of Content
  @id Document Internal Identifier
  @iso-8601-date ISO-8601 Formatted Date
  @specific-use Specific Use
  @xml:base Base
  @xml:lang Language
Content model:
Any combination of:
• Text, numbers, or special characters
• <day> Day
• <era> Era of Time
• <month> Month
• <season> Season
• <year> Year

10.4.62 <day> Day
Numeric, two-digit value of the day of the month.

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

Content model:
Text, numbers, or special characters

10.4.63 <def> Definition List: Definition
Definition, explanation, or expansion of a word, phrase, or abbreviation.

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

Content model:
Any one of:
• <p> Paragraph, one or more

10.4.64 <def-head> Definition List: Definition Head
Heading over the second column (the definition column) of a definition list (two-part list).

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
10.4.65 <def-item> Definition List: Definition Item
One item in a definition (two-part) list.

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

Content model:
The following, in order:
- <term> Definition List: Term
- <def> Definition List: Definition, zero or more

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

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

Content model:
The following, in order:
- <title> Title, zero or one
- <term-head> Definition List: Term Head, zero or one
- <def-head> Definition List: Definition Head, zero or one
- <def-item> Definition List: Definition Item, one or more

10.4.67 <degrees> Degree(s)
Academic titles or professional certifications displayed following a personal name (for example, “MD”, “PhD”).

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

Content model:
Text, numbers, or special characters, zero or more

10.4.68 <disp-formula> Formula, Display
Mathematical equation, expression, or formula that is to be displayed as a block (callout) within the narrative flow.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
  ◦ <alt-text> Alternate Text Name (for a figure, etc.)
  ◦ <long-desc> Long Description
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <break> Line Break
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Ownership Elements
  ◦ <attrib> Attribution
  ◦ <permissions> Permissions
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
• <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• <label> Label (of an Equation, Figure, Reference, etc.)
• Math Element
  ◦ <mml:math> Math (MathML Tag Set)
• <code> Code
• <graphic> Graphic
• <media> Media Object
• <preformatted> Preformatted Text
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.69 <disp-formula-group> Formula, Display Group
Container element for equations or other mathematical expressions.
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <label> Label (of an Equation, Figure, Reference, etc.), zero or one
• <caption> Caption of a Figure, Table, etc., zero or one
• Any combination of:
  ◦ Accessibility Elements
  ◦ <alt-text> Alternate Text Name (for a figure, etc.)
  ◦ <long-desc> Long Description
  ◦ Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Any combination of:
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group

10.4.70 <disp-quote> Quote, Displayed
Extract or extended quoted passage from another work, usually made typographically distinct from surrounding text.

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

Content model:
The following, in order:
• <title> Title, zero or one
• <p> Paragraph, one or more
• Ownership Elements
  ◦ <attrib> Attribution, zero or one
  ◦ <permissions> Permissions, zero or one

10.4.71 <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
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
10.4.72 <element-citation> Element Citation

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

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

Content model:
One or more of any of:
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<alternatives>` Alternatives For Processing
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<chem-struct>` Chemical Structure (Display)
  - `<inline-formula>` Formula, Inline
- Other Inline Elements
  - `<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-acronym>` Conference Acronym
- `<conf-date>` Conference Date
- `<conf-loc>` Conference Location
- `<conf-name>` Conference Name
- `<conf-sponsor>` Conference Sponsor
- `<data-title>` Data Title
- `<date>` Date
- `<date-in-citation>` Date within a Citation
- `<day>` Day
- Linking Elements
10.4.73 <elocation-id> Electronic Location Identifier

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

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

Content model:
Text, numbers, or special characters
10.4.74 `<email>` Email Address
Electronic mail address of a person or institution.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.75 `<era>` Era of Time
A specified range of years that is named for an event, political ruler, or characterization of the timespan.

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

Content model:
Text, numbers, or special characters

10.4.76 `<etal>` Et Al.
Indicator of the presence of unnamed contributors. Typically indicated in print with the text “et al.” or with an ellipsis.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.77 `<ext-link>` External Link
Link to an external file or resource.

Attributes:
- `@assigning-authority` Authority Responsible for an Identifier
- `@ext-link-type` Type of External Link
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <roman> Roman
  ◦ <sc> Small Caps
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.78 <fax> Fax Number: in an Address
Portion of an address that contains a fax number.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.79 <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 Document Internal Identifier
@orientation Orientation
@position Position
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <object-id> Object Identifier, zero or more
• <caption> Caption of a Figure, Table, etc., zero or one
• Any combination of:
  ◦ Accessibility Elements
    • <alt-text> Alternate Text Name (for a figure, etc.)
    • <long-desc> Long Description
• Any combination of:
  ◦ <disp-formula> Formula, Display
  ◦ <disp-formula-group> Formula, Display Group
10.4.80 <fixed-case> Fixed Case

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

Attributes:

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

Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
- <chem-struct> Chemical Structure (Display)
- <inline-formula> Formula, Inline
- Other Inline Elements
  - <abbrev> Abbreviation or Acronym
  - <named-content> Named Special (Subject) Content
  - <styled-content> Styled Special (Subject) Content
10.4.81 <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 Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any one of:
• <p> Paragraph, one or more

10.4.82 <fn-group> Footnote Group
Container element for footnotes that appear at the end of the document.

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

Content model:
The following, in order:
• <title> Title, zero or one
• <fn> Footnote, one or more

10.4.83 <fpage> First Page
Page number on which a document starts.

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

Content model:
Text, numbers, or special characters

10.4.84 <front> Front Matter
Container element for the metadata of an article and the journal in which it was published.

Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:

```xml
<article-meta> Article Metadata

10.4.85 <funding-group> Funding Group
Container element for information about the funding of the research reported in the article (for example, grants, contracts, sponsors) and any open access fees for the article itself.

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

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

10.4.86 <funding-source> Funding Source
Agency or organization that funded the research on which a work was based.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper

10.4.87 <funding-statement> Funding Statement
Displayable prose statement that describes the funding for the research on which a work was based.

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

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

- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- `<named-content>` Named Special (Subject) Content
- `<styled-content>` Styled Special (Subject) Content
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript

### 10.4.88 `<given-names>` Given (First) Names

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

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

**Content model:**

Text, numbers, or special characters, zero or more

### 10.4.89 `<glossary>` Glossary Elements List

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

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

**Content model:**

The following, in order:
- `<title>` Title, zero or one
- `<p>` Paragraph, zero or more
- `<def-list>` Definition List, zero or more
- `<glossary>` Glossary Elements List, zero or more

### 10.4.90 `<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
10.4.91 <glyph-ref> Glyph Reference for a Private Character
Once a private character has been declared using a <glyph-data> element, the character need not be defined with the same <glyph-data> element every time it is used. The character can be reused by using the <glyph-ref> element to point to the full <glyph-data> element. The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <glyph-ref> element to point to the @id attribute of an existing <glyph-data> element. Since the reference uses the ID/IDREF, the reference may precede or follow the element to which it is pointing.

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

Content model:
This is an EMPTY element

10.4.92 <gov> Government Report, Cited
Container element for the identification information (typically the title and/or an identification number) for a cited governmental report or other government publication.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript

10.4.93 <graphic> Graphic
Description of and pointer to an external file containing a still image.
Attributes:

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

Content model:
The following, in order:
• <object-id> Object Identifier, zero or one
• Any combination of:
  ◦ Accessibility Elements
    ▪ <alt-text> Alternate Text Name (for a figure, etc.)
    ▪ <long-desc> Long Description
  ◦ Zero or more occurrences of the following, in order:
    ◦ Ownership Elements
      ▪ <attrib> Attribution, zero or one
      ▪ <permissions> Permissions, zero or one

10.4.94 <hr> Horizontal Rule
An explicit horizontal rule.

Attributes:

@id Document Internal Identifier
@xml:base Base

Content model:
This is an EMPTY element

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

Attributes:

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
10.4.96 <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 Document Internal Identifier
- @mime-subtype Mime Subtype
- @mimetype Mime Type
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
Any one of:
- <alt-text> Alternate Text Name (for a figure, etc.), zero or one

10.4.97 <inline-supplementary-material> Inline Supplementary Material Metadata
Inline description of, and possibly a pointer to, an external file that provides supplementary information for the document.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @mime-subtype Mime Subtype
- @mimetype Mime Type
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration
Content model:
Any combination of:
• Text, numbers, or special characters
• Accessibility Elements
  ◦ <alt-text> Alternate Text Name (for a figure, etc.)
  ◦ <long-desc> Long Description
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.99 <institution-id> Institution Identifier
A externally defined institutional identifier, whether publisher-specific (for example “AIP”) or from an established identifying authority (for example, “Ringgold” or “ISNI”).

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@institution-id-type Type of Institution Identifier
10.4.100 <institution-wrap> Institution Wrapper
A wrapper element to hold both the name of an institution (<institution>) and any identifiers for that institution (<institution-id>), for example, an INSI or Ringgold ID.

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

Content model:
Any combination of:
• <institution> Institution Name: in an Address
• <institution-id> Institution Identifier

10.4.101 <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
@id Document Internal Identifier
@publication-format Format of Publication
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters, zero or more

10.4.102 <issn> ISSN
International Standard Serial Number, the international code that uniquely identifies a serial publication title.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@publication-format Format of Publication
@pub-type Type of Publication
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters, zero or more

10.4.103 <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:
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
10.4.104 <issue> Issue Number
Issue number of a journal, or in rare instances, a book.

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

10.4.105 <issue-id> Issue Identifier
Name or identifier of an entire journal issue (for example, a DOI).

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

10.4.106 <issue-part> Issue Part
Number, name, or other identifier of a sub-part of a journal issue.

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

10.4.107 <issue-title> Issue Title
Theme or special title for a journal issue.

Attributes:
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language
Content model:
Text, numbers, or special characters, zero or more

10.4.108 <italic>Italic
Used to mark text that should appear in an italic or slanted font.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
• <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <abbreviation-acronym> 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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.109 <journal-id> Journal Identifier
Short code or abbreviation used as an identifier for a journal.

Attributes:
@id Document Internal Identifier
@journal-id-type Type of Journal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Text, numbers, or special characters

10.4.110 <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 Document Internal Identifier
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Other Inline Elements
  ◦ <abbrev> Abbreviation or Acronym
  ◦ <named-content> Named Special (Subject) Content
  ◦ <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.111 <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 Document Internal Identifier
@kwd-group-type Keyword Authority
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <title> Title, zero or one
• One or more of any of:
  ◦ <kwd> Keyword
  ◦ <compound-kwd> Compound Keyword
  ◦ <nested-kwd> Nested Keyword
10.4.112 <label> Label (of an Equation, Figure, Reference, etc.)
Number and/or prefix word placed at the beginning of display elements (for example, equation, statement, figure).

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

Content model:
Text, numbers, or special characters, zero or more

10.4.113 <license> License Information
Set of conditions under which the content may be used, accessed, and distributed.

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

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

10.4.114 <license-p> License Paragraph
Paragraph of text within the description of a <license>.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  • <related-article> Related Article Information
  • <related-object> Related Object Information
• Paragraph-level Display Elements
  • <boxed-text> Boxed Text
  • <chem-struct-wrap> Chemical Structure Wrapper
  • <code> Code
  • <fig> Figure
10.4.115 `<list>` List

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

Attributes:

- `@continued-from` Continued From
- `@id` Document Internal Identifier
- `@list-content` List Content
10.4.116 <list-item> List Item

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

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

Content model:
The following, in order:
- <title> Title, zero or one
- <list-item> List Item, one or more

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

Content model:
Text, numbers, or special characters, zero or more

10.4.118 <lpage> Last Page

Page number on which a document ends.

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

Content model:
The following, in order:
• <object-id> Object Identifier, zero or one
• Any combination of:
  • Accessibility Elements
  • <alt-text> Alternate Text Name (for a figure, etc.)
  • <long-desc> Long Description
• Zero or more occurrences of the following, in order:
  • Ownership Elements
  • <attrib> Attribution, zero or one
  • <permissions> Permissions, zero or one

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
• <bold> Bold
• <fixed-case> Fixed Case
• <italic> Italic
• <monospace> Monospace Text (Typewriter Text)
• <overline> Overline
• <roman> Roman
• <sans-serif> Sans Serif
• <sc> Small Caps
• <strike> Strike Through
• <underline> Underline
• <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing

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

• Other Inline Elements
  • <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-acronym> Conference Acronym
• <conf-date> Conference Date
• <conf-loc> Conference Location
• <conf-name> Conference Name
• <conf-sponsor> Conference Sponsor
• <data-title> Data Title
• <date> Date
• <date-in-citation> Date within a Citation
• <day> Day
• <edition> Edition Statement, Cited

• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• <elocation-id> Electronic Location Identifier
• <etal> Et Al.
• <fpage> First Page
• <gov> Government Report, Cited
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper
• <isbn> ISBN
• <issn> ISSN
• <issn-l> ISSN-L (Linking ISSN)
• <issue> Issue Number
• <issue-ident> Issue Identifier
• <issue-part> Issue Part
• <issue-title> Issue Title
• <lpage> Last Page
• <month> Month
• <name> Name of Person
• <name-alternatives> Name Alternatives
• <object-ident> Object Identifier
• <page-range> Page Ranges
• <part-title> Part Title in a Citation
10.4.121 `<mml:math>` Math (MathML Tag Set)
Use documentation for the Mathematical Markup Language (MathML) Tag Set (http://www.w3.org/TR/MathML3/ or http://www.w3.org/TR/MathML2/).

Attributes:
@xmlns:mml MathML Namespace Declaration

10.4.122 `<monospace>` Monospace Text (Typewriter Text)
Used to mark text that should appear in a non-proportional font, such as courier.

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
10.4.123 `<month>` Month
Names one of the months of the year, such as “July” or “07”.

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

Content model:
Text, numbers, or special characters

10.4.124 `<name>` Name of Person
Container element for the component elements of personal names, such as a `<surname>`.

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

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

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

Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:
Any one of:
• One or more of any of:
  ◦ <name> Name of Person
  ◦ <string-name> Name of Person (Unstructured)

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Paragraph-level Display Elements
  ◦ <boxed-text> Boxed Text
  ◦ <chem-struct-wrap> Chemical Structure Wrapper
  ◦ <code> Code
  ◦ <fig> Figure
  ◦ <graphic> Graphic
  ◦ <media> Media Object
  ◦ <preformat> Preformatted Text
  ◦ <supplementary-material> Supplementary Material Metadata
  ◦ <table-wrap> Table Wrapper
• <disp-formula> Formula, Display
• <disp-formula-group> Formula, Display Group
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
10.4.127 <nested-kwd> Nested Keyword
A hierarchically-structured keyword, such as a keywords from a taxonomy.

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

Content model:
The following, in order:
• One or more of any of:
  º <kwd> Keyword
  º <compound-kwd> Compound Keyword
  º <nested-kwd> Nested Keyword, zero or more

10.4.128 <nlm-citation> NLM Citation
This element is deprecated; avoid using it. Use <element-citation>.

Attributes:
- @id Document Internal Identifier
- @publication-format Format of Publication
- @publication-type Type of Referenced Publication
- @publisher-type Type of Publisher
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration
Content model:
The following, in order:
• Any combination of:
  ◦ <person-group> Person Group for a Cited Publication
  ◦ <collab> Collaborative (Group) Author
• Any combination of:
  ◦ <article-title> Article Title
  ◦ <trans-title> Translated Title
• <source> Source, zero or one
• <patent> Patent Number, Cited, zero or one
• <trans-source> Translated Source, zero or one
• <year> Year, zero or one
• Any one of:
  ◦ The following, in order:
    ▪ <month> Month, zero or one
    ▪ <day> Day, zero or one
    ▪ <time-stamp> Time Stamp for Cited Work, zero or one
  ◦ <season> Season, zero or one
• <access-date> Access Date for Cited Work, zero or one
• <volume> Volume Number, zero or one
• <edition> Edition Statement, Cited, zero or one
• <conf-name> Conference Name, zero or one
• <conf-date> Conference Date, zero or one
• <conf-loc> Conference Location, zero or one
• Any combination of:
  ◦ <issue> Issue Number
  ◦ <supplement> Supplement Information
• <publisher-loc> Publisher’s Location, zero or one
• <publisher-name> Publisher’s Name, zero or one
• Zero or more occurrences of the following, in order:
  ◦ <fpage> First Page, zero or one
  ◦ <lpage> Last Page, zero or one
• <page-count> Page Count, zero or one
• <series> Series, zero or one
• <comment> Comment in a Citation, zero or more
• <pub-id> Publication Identifier for a Cited Publication, zero or more
• <annotation> Annotation in a Citation, zero or one

10.4.129 <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
@id Document Internal Identifier
@pub-id-type Type of Publication Identifier
@specific-use Specific Use
@xml:base Base

Content model:
Text, numbers, or special characters

10.4.130 <on-behalf-of> On Behalf of
When a contributor is acting as a representative of an organization, he/she is said to have written or edited a work “on behalf of” that organization or group, and this element holds the name of the organization or group.
Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - \texttt{<bold>} Bold
  - \texttt{<fixed-case>} Fixed Case
  - \texttt{<italic>} Italic
  - \texttt{<monospace>} Monospace Text (Typewriter Text)
  - \texttt{<overline>} Overline
  - \texttt{<roman>} Roman
  - \texttt{<sans-serif>} Sans Serif
  - \texttt{<sc>} Small Caps
  - \texttt{<strike>} Strike Through
  - \texttt{<underline>} Underline
  - \texttt{<ruby>} Ruby Annotation Wrapper
- Baseline Change Elements
  - \texttt{<sub>} Subscript
  - \texttt{<sup>} Superscript
- \texttt{<institution>} Institution Name: in an Address
- \texttt{<institution-wrap>} Institution Wrapper
- \texttt{<fn>} Footnote
- \texttt{<target>} Target of an Internal Link
- \texttt{<xref>} X (cross) Reference

10.4.131 \texttt{<open-access>} Open Access
Open access provisions that apply to a work or the funding information that provided the open access provisions.

Attributes:
- \texttt{@id} Document Internal Identifier
- \texttt{@specific-use} Specific Use
- \texttt{@xml:base} Base
- \texttt{@xml:lang} Language

Content model:
Any one of:
- \texttt{<p>} Paragraph, one or more

10.4.132 \texttt{<overline>} Overline
Used to mark text that should appear with a horizontal line above each character.

Attributes:
- \texttt{@id} Document Internal Identifier
- \texttt{@specific-use} Specific Use
- \texttt{@toggle} Toggle Switch
- \texttt{@xml:base} Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - \texttt{<email>} Email Address
  - \texttt{<ext-link>} External Link
  - \texttt{<uri>} Uniform Resource Identifier (URI)
- \texttt{<inline-supplementary-material>} Inline Supplementary Material Metadata
- Related Material Elements
  - \texttt{<related-article>} Related Article Information
  - \texttt{<related-object>} Related Object Information
- Emphasis Elements
  - \texttt{<bold>} Bold
  - \texttt{<fixed-case>} Fixed Case
10.4.133 <p> Paragraph

Textual unit or block; a textual paragraph.

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

Content model:
  Any combination of:
  • Text, numbers, or special characters
  • Linking Elements
    • <email> Email Address
    • <ext-link> External Link
    • <uri> Uniform Resource Identifier (URI)
  • <inline-supplementary-material> Inline Supplementary Material Metadata
  • Related Material Elements
    • <related-article> Related Article Information
    • <related-object> Related Object Information
  • Paragraph-level Display Elements
    • <boxed-text> Boxed Text
    • <chem-struct-wrap> Chemical Structure Wrapper
    • <code> Code
    • <fig> Figure
    • <graphic> Graphic
    • <media> Media Object
    • <preformat> Preformatted Text
    • <supplementary-material> Supplementary Material Metadata
    • <table-wrap> Table Wrapper
  • <disp-formula> Formula, Display
  • <disp-formula-group> Formula, Display Group
  • Citation Elements
    • <citation-alternatives> Citation Alternatives
    • <element-citation> Element Citation
10.4.134 <page-count> Page Count
Total number of pages in a work in print; by convention, each page or partial page is counted as one. Electronic-only works do not traditionally have page counts.

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

Content model:
This is an EMPTY element

10.4.135 <page-range> Page Ranges
Text describing discontinuous pagination (for example, 8-11, 14-19, 40).

Attributes:
@content-type Type of Content
@id Document Internal Identifier
10.4.136 <part-title> Part Title in a Citation
Title of part of a book (for example, chapter, module) described in a bibliographic reference.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.137 <patent> Patent Number, Cited
Identification information for a patent in a bibliographic reference or product.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.138 <permissions> Permissions
Container element for copyright and license information.

Attributes:
@id Document Internal Identifier
@xml:base Base
Content model:
The following, in order:
• <copyright-statement> Copyright Statement, zero or more
• <copyright-year> Copyright Year, zero or more
• <copyright-holder> Copyright Holder, zero or more
• Any combination of:
  • <all:free_to_read> Free to Read (NISO Access License and Indicators)
  • <license> License Information

10.4.139 <person-group> Person Group for a Cited Publication
Container element for one or more contributors in a bibliographic reference.

Attributes:
@id Document Internal Identifier
@person-group-type Type of People in the Person Group
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Contributor Naming Elements
  • <anonymous> Anonymous
  • <collab> Collaborative (Group) Author
  • <collab-alternatives> Collaboration Alternatives
  • <name> Name of Person
  • <name-alternatives> Name Alternatives
  • <aff> Affiliation
  • <aff-alternatives> Affiliation Alternatives
  • <etal> Et Al.
  • <role> Role or Function Title of Contributor
  • <string-name> Name of Person (Unstructured)

10.4.140 <phone> Phone Number: in an Address
Portion of an address which contains a phone number.

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

Content model:
Text, numbers, or special characters, zero or more

10.4.141 <postal-code> Postal Code
A postal number such as a zip-code or postal code used to address physical mail.

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

Content model:
Text, numbers, or special characters, zero or more
10.4.142 `<prefix>` Prefix

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

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

Content model:
Text, numbers, or special characters, zero or more

10.4.143 `<preformat>` Preformatted Text

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

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

Content model:
Any combination of:
- Text, numbers, or special characters
- Accessibility Elements
  - `<alt-text>` Alternate Text Name (for a figure, etc.)
  - `<long-desc>` Long Description
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- Ownership Elements
  - `<attrib>` Attribution
  - `<permissions>` Permissions
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospace Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- Other Inline Elements
  - `<abbrev>` Abbreviation or Acronym
  - `<named-content>` Named Special (Subject) Content
  - `<styled-content>` Styled Special (Subject) Content
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
10.4.144 <price> Price
Sale price or licensing fees of a work.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper

10.4.145 <principal-award-recipient> Principal Award Recipient
Individual(s) or institution(s) to whom the award was given (for example, the principal grant holder or the sponsored individual).

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

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

10.4.146 <principal-investigator> Principal Investigator
Individual(s) responsible for the intellectual content of the work reported in the document.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <contrib-id> Contributor Identifier
• <name> Name of Person
• <name-alternatives> Name Alternatives
• <string-name> Name of Person (Unstructured)

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

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

Content model:
  Any one of:
  • Any one of:
    ◦ <glyph-data> Glyph Data for a Private Character
    ◦ <glyph-ref> Glyph Reference for a Private Character
  • Inline Display Elements
    ◦ <inline-graphic> Graphic, Inline, zero or more

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

Content model:
  Any combination of:
  • Text, numbers, or special characters
  • <inline-supplementary-material> Inline Supplementary Material Metadata
  • Related Material Elements
    ◦ <related-article> Related Article Information
    ◦ <related-object> Related Object Information
  • Emphasis Elements
    ◦ <bold> Bold
    ◦ <fixed-case> Fixed Case
    ◦ <italic> Italic
    ◦ <monospace> Monospace Text (Typewriter Text)
    ◦ <overline> Overline
    ◦ <roman> Roman
    ◦ <sans-serif> Sans Serif
    ◦ <sc> Small Caps
    ◦ <strike> Strike Through
    ◦ <underline> Underline
<ruby>Ruby Annotation Wrapper</ruby>
• <alternatives>Alternatives For Processing</alternatives>
Inline Display Elements
• <inline-graphic>Graphic, Inline</inline-graphic>
• <chem-struct>Chemical Structure (Display)</chem-struct>
• <inline-formula>Formula, Inline</inline-formula>
Other Inline Elements
• <abbrev>Abbreviation or Acronym</abbrev>
• <named-content>Named Special (Subject) Content</named-content>
• <styled-content>Styled Special (Subject) Content</styled-content>
• <price>Price</price>
• <annotation>Annotation in a Citation</annotation>
• <article-title>Article Title</article-title>
• <chapter-title>Chapter Title in a Citation</chapter-title>
• <collab>Collaborative (Group) Author</collab>
• <collab-alternatives>Collaboration Alternatives</collab-alternatives>
• <comment>Comment in a Citation</comment>
• <conf-acronym>Conference Acronym</conf-acronym>
• <conf-date>Conference Date</conf-date>
• <conf-loc>Conference Location</conf-loc>
• <conf-name>Conference Name</conf-name>
• <conf-sponsor>Conference Sponsor</conf-sponsor>
• <data-title>Data Title</data-title>
• <date>Date</date>
• <date-in-citation>Date within a Citation</date-in-citation>
• <day>Day</day>
Linking Elements
• <email>Email Address</email>
• <ext-link>External Link</ext-link>
• <uri>Uniform Resource Identifier (URI)</uri>
• <elocation-id>Electronic Location Identifier</elocation-id>
• <etal>Et Al.</etal>
• <fpage>First Page</fpage>
• <gov>Government Report, Cited</gov>
• <institution>Institution Name: in an Address</institution>
• <institution-wrap>Institution Wrapper</institution-wrap>
• <isbn>ISBN</isbn>
• <issn>ISSN</issn>
• <issn-l>ISSN-L (Linking ISSN)</issn-l>
• <issue>Issue Number</issue>
• <issue-id>Issue Identifier</issue-id>
• <issue-part>Issue Part</issue-part>
• <issue-title>Issue Title</issue-title>
• <lpage>Last Page</lpage>
• <month>Month</month>
• <name>Name of Person</name>
• <name-alternatives>Name Alternatives</name-alternatives>
• <object-id>Object Identifier</object-id>
• <page-range>Page Ranges</page-range>
• <part-title>Part Title in a Citation</part-title>
• <patent>Patient Number, Cited</patent>
• <person-group>Person Group for a Cited Publication</person-group>
• <pub-id>Publication Identifier for a Cited Publication</pub-id>
• <publisher-loc>Publisher’s Location</publisher-loc>
• <publisher-name>Publisher’s Name</publisher-name>
• <role>Role or Function Title of Contributor</role>
• <season>Season</season>
• <series>Series</series>
• <size>Size</size>
10.4.149 <pub-id> Publication Identifier for a Cited Publication
Identifier of a publication in a bibliographic reference or product description.

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

Content model:
- Text, numbers, or special characters

10.4.150 <publisher-loc> Publisher’s Location
Place of publication, usually a city, such as New York or London.

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

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Address Elements
    - <addr-line> Address Line
    - <city> City
    - <country> Country: in an Address
    - <fax> Fax Number: in an Address
    - <institution> Institution Name: in an Address
    - <institution-wrap> Institution Wrapper
    - <phone> Phone Number: in an Address
    - <postal-code> Postal Code
    - <state> State or Province
10.4.151 <publisher-name> Publisher’s Name
Name of the person, company, or other entity that published a work.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper

10.4.152 <rb> Ruby Base Text
This element is one half of a Ruby annotation (<ruby>), and it contains the narrative text in the document, which may be as short as a single character, to which a Ruby Textual Annotation (<rt>) should be applied.

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

Content model:
Any combination of:
• Text, numbers, or special characters
• <bold> Bold
• <fixed-case> Fixed Case
• <italic> Italic
• <monospace> Monospace Text (Typewriter Text)
• <overline> Overline
• <roman> Roman
• <sans-serif> Sans Serif
• <sc> Small Caps
• <strike> Strike Through
• <underline> Underline

10.4.153 <ref> Reference Item
One item in a bibliographic list.

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

Content model:
One or more of any of:
• Citation Elements
  • <citation-alternatives> Citation Alternatives
  • <element-citation> Element Citation
  • <mixed-citation> Mixed Citation
  • <nlm-citation> NLM Citation

10.4.154 <ref-list> Reference List (Bibliographic)
List of bibliographic references for a document or document component.
10.4.155 <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 Document Internal Identifier
@issue Issue Number of a Related Article
@journal-id Journal Identifier of a Related Article
@journal-id-type Type of Journal Identifier
@page Page of Related Article
@related-article-type Type of Related Article
@specific-use Specific Use
@vol Volume of Related Article
<xlink:actuate Actuating the Link
<xlink:href Href (Linking Mechanism)
<xlink:role Role of the Link
<xlink:show Showing the Link
<xlink:title Title of the Link
<xlink:type Type of Link
@xml:base Base
@xml:lang Language
@xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold>Bold</bold>
  ◦ <fixed-case>Fixed Case</fixed-case>
  ◦ <italic>Italic</italic>
  ◦ <monospace>Monospace Text (Typewriter Text)</monospace>
  ◦ <overline>Overline</overline>
  ◦ <roman>Roman</roman>
  ◦ <sans-serif>Sans Serif</sans-serif>
  ◦ <sc>Small Caps</sc>
  ◦ <strike>Strike Through</strike>
  ◦ <underline>Underline</underline>
  ◦ <ruby>Ruby Annotation Wrapper</ruby>
• <journal-id>Journal Identifier</journal-id>
• <named-content>Named Special (Subject) Content</named-content>
• <styled-content>Styled Special (Subject) Content</styled-content>
• <annotation>Annotation in a Citation</annotation>
• <article-title>Article Title</article-title>
• <chapter-title>Chapter Title in a Citation</chapter-title>
• <collab>Collaborative (Group) Author</collab>
• &lt;collab-alternatives&gt; Collaboration Alternatives
• &lt;comment&gt; Comment in a Citation
• &lt;conf-acronym&gt; Conference Acronym
• &lt;conf-date&gt; Conference Date
• &lt;conf-loc&gt; Conference Location
• &lt;conf-name&gt; Conference Name
• &lt;conf-sponsor&gt; Conference Sponsor
• &lt;data-title&gt; Data Title
• &lt;date&gt; Date
• &lt;date-in-citation&gt; Date within a Citation
• &lt;day&gt; Day
• &lt;edition&gt; Edition Statement, Cited
• Linking Elements
  ◦ &lt;email&gt; Email Address
  ◦ &lt;ext-link&gt; External Link
  ◦ &lt;uri&gt; Uniform Resource Identifier (URI)
• &lt;elocation-id&gt; Electronic Location Identifier
• &lt;etal&gt; Et Al.
• &lt;fpage&gt; First Page
• &lt;gov&gt; Government Report, Cited
• &lt;institution&gt; Institution Name: in an Address
• &lt;institution-wrap&gt; Institution Wrapper
• &lt;isbn&gt; ISBN
• &lt;issn&gt; ISSN
• &lt;issn-l&gt; ISSN-L (Linking ISSN)
• &lt;issue&gt; Issue Number
• &lt;issue-id&gt; Issue Identifier
• &lt;issue-part&gt; Issue Part
• &lt;issue-title&gt; Issue Title
• &lt;lpage&gt; Last Page
• &lt;month&gt; Month
• &lt;name&gt; Name of Person
• &lt;name-alternatives&gt; Name Alternatives
• &lt;object-id&gt; Object Identifier
• &lt;page-range&gt; Page Ranges
• &lt;part-title&gt; Part Title in a Citation
• &lt;patent&gt; Patent Number, Cited
• &lt;person-group&gt; Person Group for a Cited Publication
• &lt;pub-id&gt; Publication Identifier for a Cited Publication
• &lt;publisher-loc&gt; Publisher’s Location
• &lt;publisher-name&gt; Publisher’s Name
• &lt;role&gt; Role or Function Title of Contributor
• &lt;season&gt; Season
• &lt;series&gt; Series
• &lt;size&gt; Size
• &lt;source&gt; Source
• &lt;std&gt; Standard, Cited
• &lt;string-name&gt; Name of Person (Unstructured)
• &lt;supplement&gt; Supplement Information
• &lt;trans-source&gt; Translated Source
• &lt;trans-title&gt; Translated Title
• &lt;version&gt; Version Statement
• &lt;volume&gt; Volume Number
• &lt;volume-id&gt; Volume Identifier
• &lt;volume-series&gt; Volume Series
• &lt;year&gt; Year
• Baseline Change Elements
  ◦ &lt;sub&gt; Subscript
  ◦ &lt;sup&gt; Superscript
10.4.156 <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 Document Internal Identifier
- @link-type Type of Link (for a Related Object)
- @object-id Object Identifier
- @object-id-type Object Identifier Type
- @object-type Object Type
- @source-id Source Identifier
- @source-id-type Source Identifier Type
- @source-type Source Type
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <named-content> Named Special (Subject) Content
- <styled-content> Styled Special (Subject) Content
- <annotation> Annotation in a Citation
- <article-title> Article Title
- <chapter-title> Chapter Title in a Citation
- <collab> Collaborative (Group) Author
- <collab-alternatives> Collaboration Alternatives
- <comment> Comment in a Citation
- <conf-acronym> Conference Acronym
- <conf-date> Conference Date
- <conf-loc> Conference Location
- <conf-name> Conference Name
- <conf-sponsor> Conference Sponsor
- <data-title> Data Title
- <date> Date
- <date-in-citation> Date within a Citation
10.4.157 <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
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
10.4.158 <roman> Roman
Used to mark text that should remain in roman script no matter what style the surrounding text takes on.

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @toggle Toggle Switch
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
  - <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <chem-struct> Chemical Structure (Display)
  - <inline-formula> Formula, Inline
- Other Inline Elements
  - <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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

10.4.159 <rt> Ruby Textual Annotation
This element is one half of a Ruby annotation (<ruby>), and it contains the text that annotates the material in the Ruby Base (<rb>), which may be a small as a single character.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
Content model:
Text, numbers, or special characters, zero or more

10.4.160 <ruby> Ruby Annotation Wrapper
An inline wrapper element that surrounds some of the document narrative text in the same way a bold or italic emphasis would. The <ruby> element contains a Ruby Base (<rb> element) which contains the document text and a Ruby Textual Annotation (<rt> element) that applies to that base text.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base

Content model:
The following, in order:
• <rb> Ruby Base Text
• <rt> Ruby Textual Annotation

10.4.161 <sans-serif> Sans Serif
Used to mark text that should appear in a sans-serif font.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <abbrev> Abbreviation or Acronym
10.4.162 <sc> Small Caps

Used to mark text that should appear in a font that creates smaller capital letters.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  ◦ <related-article> Related Article Information
  ◦ <related-object> Related Object Information
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
• <chem-struct> Chemical Structure (Display)
• <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.163 <season> Season

Season of publication (for example, Spring, Third Quarter).
10.4.164 <sec> Section

Headed group of material; the basic structural unit of the body of a document.

Attributes:
- @id Document Internal Identifier
- @sec-type Type of Section
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- <title> Title
- Any combination of:
  - Paragraph-level Display Elements
    - <boxed-text> Boxed Text
    - <chem-struct-wrap> Chemical Structure Wrapper
    - <code> Code
    - <fig> Figure
    - <graphic> Graphic
    - <media> Media Object
    - <preformat> Preformatted Text
    - <supplementary-material> Supplementary Material Metadata
    - <table-wrap> Table Wrapper
  - <disp-formula> Formula, Display
  - <disp-formula-group> Formula, Display Group
- Lists
  - <def-list> Definition List
  - <list> List
- <p> Paragraph
- <disp-quote> Quote, Displayed
- <speech> Speech
- <statement> Statement, Formal
- <verse-group> Verse Form for Poetry
- <sec> Section, zero or more

10.4.165 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
10.4.166 <series> Series
Series information about a journal or book in a bibliographic reference or product.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.167 <size> Size
Size of a resource or object described in a bibliographic reference or product. The @units attribute must be used to name the units of measure (for example, minutes, hours, linear feet, pages).

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@units Units
@xml:base Base
@xml:lang Language

Content model:
Text, numbers, or special characters, zero or more

10.4.168 <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 Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <b> Bold
  ◦ <fc> Fixed Case
  ◦ <i> Italic
  ◦ <m> Monospace Text (Typewriter Text)
  ◦ <ov> Overline
  ◦ <r> Roman
  ◦ <ss> Sans Serif
  ◦ <sc> Small Caps
  ◦ <st> Strike Through
  ◦ <ul> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• Linking Elements
  ◦ <e> Email Address
  ◦ <el> External Link
  ◦ <u> Uniform Resource Identifier (URI)
• Baseline Change Elements
  ◦ <s> Subscript
  ◦ <sp> Superscript

10.4.169 <s> Speaker
One who utters one segment of a speech or dialog.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• <degrees> Degree(s)
• <gns> Given (First) Names
• <pfx> Prefix
• <sname> Surname
• <sufx> Suffix
• <fn> Footnote
• <t> Target of an Internal Link
• <xref> X (cross) Reference

10.4.170 <s> Speech
One exchange (a single speech) in a real or imaginary conversation between two or more entities.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
The following, in order:
• <s> Speaker
• <p> Paragraph, one or more
10.4.171 <state> State or Province
The name of a state, province, territory or other political unit used in an address. This is a lower-level subdivision than a country, but higher than a city, county, or parish. The names for such a unit vary geopolitically.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Text, numbers, or special characters, zero or more

10.4.172 <statement> Statement, Formal
Theorem, Lemma, Proof, Postulate, Hypothesis, Proposition, Corollary, or other formal statement, identified as such with a label and usually made typographically distinct from the surrounding text.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
The following, in order:
- <label> Label (of an Equation, Figure, Reference, etc.), zero or one
- <title> Title, zero or one
- One or more of any of:
  - <p> Paragraph
  - <statement> Statement, Formal
- Any combination of:
  - Ownership Elements
    - <attrib> Attribution
    - <permissions> Permissions

10.4.173 <std> Standard, Cited
Identification information (typically the standard number, organization name, and title of the standard) for a cited standard, where standard is defined as a document produced by a recognized standards body such as NISO, IEEE, ISO, OASIS, ANSI, etc.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
10.4.174 <std-organization> Standards Organization

The name of the standards body that created or that promulgates a standard, such as NISO, ISO, ANSI, or industry standards organizations.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• <institution> Institution Name: in an Address
• <institution-wrap> Institution Wrapper
• Baseline Change Elements
  • <sub> Subscript
  • <sup> Superscript

10.4.175 <strike> Strike Through

Used to mark text that should appear with a line through it so as to appear struck out.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@toggle Toggle Switch
@xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  • <email> Email Address
  • <ext-link> External Link
  • <uri> Uniform Resource Identifier (URI)
• <inline-supplementary-material> Inline Supplementary Material Metadata
• Related Material Elements
  • <related-article> Related Article Information
  • <related-object> Related Object Information
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
10.4.176 <string-name> Name of Person (Unstructured)
Container element for personal names captured with mixed-content where the order of the name components is not enforced.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@name-style Name Style
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- <degrees> Degree(s)
- <given-names> Given (First) Names
- <prefix> Prefix
- <surname> Surname
- <suffix> Suffix

10.4.177 <styled-content> Styled Special (Subject) Content
Stylistically distinct word or phrase within the text that cannot be tagged using any of the other mechanisms for such content. In other words, the content cannot be described with bold, italic, monospace or any of the other emphasis elements, and <named-content> is inappropriate because the semantic reason behind the typographic distinction is unknown or not clear.

Attributes:
@alt Alternative Text
@id Document Internal Identifier
@specific-use Specific Use
@style Style (NISO JATS table model; MathML Tag Set)
@style-type Style Type
@toggle Toggle Switch
@xml:base Base
Content model:

Any combination of:

- Text, numbers, or special characters
- Linking Elements
  - `<email>` Email Address
  - `<ext-link>` External Link
  - `<uri>` Uniform Resource Identifier (URI)
- `<inline-supplementary-material>` Inline Supplementary Material Metadata
- Related Material Elements
  - `<related-article>` Related Article Information
  - `<related-object>` Related Object Information
- Paragraph-level Display Elements
  - `<boxed-text>` Boxed Text
  - `<chem-struct-wrap>` Chemical Structure Wrapper
  - `<code>` Code
  - `<fig>` Figure
  - `<graphic>` Graphic
  - `<media>` Media Object
  - `<preformat>` Preformatted Text
  - `<supplementary-material>` Supplementary Material Metadata
  - `<table-wrap>` Table Wrapper
- `<disp-formula>` Formula, Display
- `<disp-formula-group>` Formula, Display Group
- Emphasis Elements
  - `<bold>` Bold
  - `<fixed-case>` Fixed Case
  - `<italic>` Italic
  - `<monospace>` Monospaced Text (Typewriter Text)
  - `<overline>` Overline
  - `<roman>` Roman
  - `<sans-serif>` Sans Serif
  - `<sc>` Small Caps
  - `<strike>` Strike Through
  - `<underline>` Underline
  - `<ruby>` Ruby Annotation Wrapper
- Inline Display Elements
  - `<inline-graphic>` Graphic, Inline
  - `<private-char>` Private Character (Custom or Unicode)
  - `<chem-struct>` Chemical Structure (Display)
  - `<inline-formula>` Formula, Inline
- Lists
  - `<def-list>` Definition List
  - `<list>` List
- Math Element
  - `<mml:math>` Math (MathML Tag Set)
- Other Inline Elements
  - `<abbrev>` Abbreviation or Acronym
  - `<named-content>` Named Special (Subject) Content
  - `<styled-content>` Styled Special (Subject) Content
- `<fn>` Footnote
- `<target>` Target of an Internal Link
- `<xref>` X (cross) Reference
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript
- `<disp-quote>` Quote, Displayed
- `<speech>` Speech
- `<statement>` Statement, Formal
- `<verse-group>` Verse Form for Poetry
10.4.178 <sub> Subscript

Used to mark text that should appear lower than the baseline and slightly smaller; inferior or subscript text.

Attributes:
- @arrange Arrangement of Subscripts and Superscripts
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- <inline-supplementary-material> Inline Supplementary Material Metadata
- Related Material Elements
  - <related-article> Related Article Information
  - <related-object> Related Object Information
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
  - <chem-struct> Chemical Structure (Display)
  - <inline-formula> Formula, Inline
- Other Inline Elements
  - <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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

10.4.179 <subtitle> Document Subtitle

Subordinate part of a title for a document or document component.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters

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10.4.180 <suffix> Suffix
Qualifiers that follow a person’s name (for example, Sr., Jr., III, 3rd).

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Text, numbers, or special characters, zero or more

10.4.181 <sup> Superscript
Used to mark text that should appear higher than the baseline and slightly smaller; superior or superscript text.

Attributes:
- @arrange Arrangement of Subscripts and Superscripts
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base

Content model:
Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
10.4.182 <supplement> Supplement Information

Container element for all information particular to a supplement or for any work published as a supplement (for example, identification numbers, supplement titles, supplement series information).

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@supplement-type Type of Supplement
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <fixed-case> Fixed Case
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
10.4.183 <supplementary-material> Supplementary Material Metadata

Container element for a description of, and possibly a pointer to, external resources that support the article, but which are not part of the content of the article.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @mime-subtype Mime Subtype
- @mimetype Mime Type
- @orientation Orientation
- @position Position
- @specific-use Specific Use
- @xlink:actuate Actuating the Link
- @xlink:href Href (Linking Mechanism)
- @xlink:role Role of the Link
- @xlink:show Showing the Link
- @xlink:title Title of the Link
- @xlink:type Type of Link
- @xml:base Base
- @xml:lang Language
- @xmlns:xlink XLink Namespace Declaration

Content model:
The following, in order:
- <object-id> Object Identifier, zero or more
- <caption> Caption of a Figure, Table, etc., zero or one
- Any combination of:
  - Accessibility Elements
    - <alt-text> Alternate Text Name (for a figure, etc.)
    - <long-desc> Long Description
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <p> Paragraph, zero or more
- Ownership Elements
  - <attrib> Attribution, zero or one
  - <permissions> Permissions, zero or one

10.4.184 <surname> Surname

Surname of a person.

Attributes:
- @id Document Internal Identifier
- @initials Initials for Personal Names
**Content model:**
Text, numbers, or special characters, zero or more

### 10.4.185 `<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` Document Internal Identifier
- `@rules` Rules (NISO JATS table model)
- `@specific-use` Specific Use
- `@style` Style (NISO JATS table model; MathML Tag Set)
- `@summary` Summary (NISO JATS table model)
- `@width` Width (NISO JATS table model)
- `@xml:base` Base

**Content model:**
The following, in order:
- Any one of:
  - `<col>` Table Column (NISO JATS table model), zero or more
  - `<colgroup>` Table Column Group (NISO JATS table model), zero or more
- Any one of:
  - The following, in order:
    - `<thead>` Table Header (NISO JATS table model), zero or one
    - `<tfoot>` Table Footer (NISO JATS table model), zero or one
    - `<tbody>` Table Body (NISO JATS table model), one or more
  - `<tr>` Table Row (NISO JATS table model), one or more

### 10.4.186 `<table-wrap>` Table Wrapper
Wrapper element for a complete table, including the tabular material (rows and columns), caption (including title), footnotes, and alternative descriptions of the table for purposes of accessibility.

**Attributes:**
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@orientation` Orientation
- `@position` Position
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language

**Content model:**
The following, in order:
- `<object-id>` Object Identifier, zero or more
- `<caption>` Caption of a Figure, Table, etc., zero or one
- Any combination of:
  - Accessibility Elements
    - `<alt-text>` Alternate Text Name (for a figure, etc.)
    - `<long-desc>` Long Description
- Any combination of:
  - `<disp-quote>` Quote, Displayed
  - `<speech>` Speech
  - `<statement>` Statement, Formal
  - `<verse-group>` Verse Form for Poetry
10.4.187 <table-wrap-foot> Table Wrapper Footer
Container element to hold the footnotes, general notes, or other paragraphs at the end of a table. This element does not contain tabular data.

Attributes:
@id Document Internal Identifier
@xml:base Base

Content model:
The following, in order:
• <title> Title, zero or one
• One or more of any of:
  • <p> Paragraph
  • <fn-group> Footnote Group
  • <fn> Footnote
  • Ownership Elements
    • <attrib> Attribution, zero or one
    • <permissions> Permissions

10.4.188 <target> Target of an Internal Link
Anchor or fixed location that acts as the target for a cross-reference.

Attributes:
@id Document Internal Identifier
@specific-use Specific Use
@target-type Type of Target
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  • <bold> Bold
  • <italic> Italic
  • <monospace> Monospace Text (Typewriter Text)
  • <overline> Overline
  • <roman> Roman
  • <sans-serif> Sans Serif
  • <sc> Small Caps
  • <strike> Strike Through
  • <underline> Underline
  • <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
10.4.189 <tbody> Table Body (NISO JATS table model)
Container element that holds the rows and columns in one of the body (as opposed to the header) portions of a table.

Attributes:
- @align Horizontal Alignment (NISO JATS table model)
- @char Table Cell Alignment Character (NISO JATS table model)
- @charoff Table Character Offset (NISO JATS table model)
- @content-type Type of Content
- @id Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
- <tr> Table Row (NISO JATS table model), one or more

10.4.190 <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 Document Internal Identifier
- @rowspan Row Span (NISO JATS table model)
- @scope Scope (NISO JATS table model)
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <hr> Horizontal Rule
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <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
10.4.191 <term> Definition List: Term

Word, phrase, graphic, chemical structure, equation, or other noun that is being defined or described.

This element is typically used in conjunction with a definition in a definition list (two-part list). The term occupies the first column of the two-part list and is the subject of the definition or description, which occupies the second column.

Attributes:
- @id Document Internal Identifier
- @rid Reference to an Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <inline-supplementary-material> Inline Supplementary Material Metadata
10.4.192 <term-head> Definition List: Term Head

Heading over the first column (the term column) of a definition list (two-part list).

Attributes:
- @id Document Internal Identifier
- @xml:base Base

Content model:

Any combination of:
- Text, numbers, or special characters
- Linking Elements
  - <email> Email Address
  - <ext-link> External Link
  - <uri> Uniform Resource Identifier (URI)
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- <alternatives> Alternatives For Processing
- Inline Display Elements
- Other Inline Elements
  - <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
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript
10.4.193 <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 graphic version of the table).

Attributes:
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
Any combination of:
- Text, numbers, or special characters
- Emphasis Elements
  - <bold> Bold
  - <fixed-case> Fixed Case
  - <italic> Italic
  - <monospace> Monospace Text (Typewriter Text)
  - <overline> Overline
  - <roman> Roman
  - <sans-serif> Sans Serif
  - <sc> Small Caps
  - <strike> Strike Through
  - <underline> Underline
  - <ruby> Ruby Annotation Wrapper
- Inline Display Elements
  - <inline-graphic> Graphic, Inline
- <private-char> Private Character (Custom or Unicode)
- Math Element
  - <mml:math> Math (MathML Tag Set)
- Named Special (Subject) Content
- Styled Special (Subject) Content
- Baseline Change Elements
  - <sub> Subscript
  - <sup> Superscript

10.4.194 <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)
10.4.195 <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: Document Internal Identifier
- @rowspan: Row Span (NISO JATS table model)
- @style: Style (NISO JATS table model; MathML Tag Set)
- @valign: Vertical Alignment (NISO JATS table model)
- @xml:base: Base

Content model:

- Any combination of:
  - Text, numbers, or special characters
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - <hr> Horizontal Rule
  - <inline-supplementary-material> Inline Supplementary Material Metadata
  - Related Material Elements
    - <related-article> Related Article Information
    - <related-object> Related Object Information
  - <disp-formula> Formula, Display
  - <disp-formula-group> Formula, Display Group
  - <break> Line Break
  - Citation Elements
    - <citation-alternatives> Citation Alternatives
    - <element-citation> Element Citation
    - <mixed-citation> Mixed Citation
    - <nlm-citation> NLM Citation
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
10.4.196 <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 Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
<tr> Table Row (NISO JATS table model), one or more

10.4.197 <time-stamp> Time Stamp for Cited Work
This element is deprecated; avoid using it. Use <date-in-citation>.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base

Content model:
Text, numbers, or special characters, zero or more

10.4.198 <title> Title
Heading or title for a structural element (for example, <sec>, <app>, <boxed-text>).
Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
+xml:base Base

Content model:
Any combination of:
• Text, numbers, or special characters
• Linking Elements
  ◦ <email> Email Address
  ◦ <ext-link> External Link
  ◦ <uri> Uniform Resource Identifier (URI)
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <chem-struct> Chemical Structure (Display)
  ◦ <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ <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
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <break> Line Break
• Citation Elements
  ◦ <citation-alternatives> Citation Alternatives
  ◦ <element-citation> Element Citation
  ◦ <mixed-citation> Mixed Citation
  ◦ <nlm-citation> NLM Citation

10.4.199 <title-group> Title Group
Container element to hold the various titles for a document or a document component.

Attributes:
@id Document Internal Identifier
+xml:base Base

Content model:
The following, in order:
• <article-title> Article Title
• <subtitle> Document Subtitle, zero or one
10.4.200 <tr> Table Row (NISO JATS table model)
Container element for all the cells in a single table row. (This element is based on and intended to be converted easily to the XHTML tr element.)

Attributes:
- @align Horizontal Alignment (NISO JATS table model)
- @char Table Cell Alignment Character (NISO JATS table model)
- @charoff Table Character Offset (NISO JATS table model)
- @content-type Type of Content
- @id Document Internal Identifier
- @style Style (NISO JATS table model; MathML Tag Set)
- @valign Vertical Alignment (NISO JATS table model)
- @xml:base Base

Content model:
- One or more of any of:
  - <th> Table Header Cell (NISO JATS table model)
  - <td> Table Data Cell (NISO JATS table model)

10.4.201 <trans-source> Translated Source
Title of the source (for example, journal, book, conference proceedings) containing material being cited in a bibliographic reference or product, when the title is translated into a language other than that in which it was originally published.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- @xml:base Base
- @xml:lang Language

Content model:
- Any combination of:
  - Text, numbers, or special characters
  - Emphasis Elements
    - <bold> Bold
    - <fixed-case> Fixed Case
    - <italic> Italic
    - <monospace> Monospace Text (Typewriter Text)
    - <overline> Overline
    - <roman> Roman
    - <sans-serif> Sans Serif
    - <sc> Small Caps
    - <strike> Strike Through
    - <underline> Underline
    - <ruby> Ruby Annotation Wrapper
  - Linking Elements
    - <email> Email Address
    - <ext-link> External Link
    - <uri> Uniform Resource Identifier (URI)
  - Baseline Change Elements
    - <sub> Subscript
    - <sup> Superscript

10.4.202 <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.
10.4.203 <underline> Underline
Used to mark text that should appear with a horizontal line beneath it.
10.4.204 <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
- @id Document Internal Identifier
- @specific-use Specific Use
- xlink:actuate Actuating the Link
- xlink:href Href (Linking Mechanism)
- xlink:role Role of the Link
- xlink:show Showing the Link
- xlink:title Title of the Link
- xlink:type Type of Link
- xml:base Base
- xml:lang Language
- xmlns:xlink XLink Namespace Declaration

Content model:
Text, numbers, or special characters, zero or more

10.4.205 <verse-group> Verse Form for Poetry

Song, poem, or verse.

Attributes:
- @content-type Type of Content
- @id Document Internal Identifier
- @specific-use Specific Use
- xml:base Base
- xml:lang Language
Content model:
The following, in order:
• <title> Title, zero or one
• <subtitle> Document Subtitle, zero or one
• <verse-line> Line of a Verse, one or more
• Ownership Elements
  ◦ <attrib> Attribution, zero or one
  ◦ <permissions> Permissions, zero or one

10.4.206 <verse-line> Line of a Verse
One line of a poem or verse.

Attributes:
@content-type Type of Content
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <alternatives> Alternatives For Processing
• Inline Display Elements
  ◦ <inline-graphic> Graphic, Inline
  ◦ <chem-struct> Chemical Structure (Display)
  ◦ <inline-formula> Formula, Inline
• Other Inline Elements
  ◦ < abbrev> Abbreviation or Acronym
  ◦ <named-content> Named Special (Subject) Content
  ◦ <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript
• <fn> Footnote
• <target> Target of an Internal Link
• <xref> X (cross) Reference

10.4.207 <version> Version Statement
A full version statement, which may be only a number, for data or software that is cited or described

Attributes:
@content-type Type of Content
@designator Designator of the Edition
@id Document Internal Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language
Content model:
Any combination of:
- Text, numbers, or special characters
- Baseline Change Elements
  - `<sub>` Subscript
  - `<sup>` Superscript

10.4.208 `<volume>` Volume Number
Number of a journal (or other document) within a series.

Attributes:
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@seq` Sequence
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language

Content model:
Text, numbers, or special characters, zero or more

10.4.209 `<volume-id>` Volume Identifier
Name or identifier (for example, DOI) that describes an entire volume.

Attributes:
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@pub-id-type` Type of Publication Identifier
- `@specific-use` Specific Use
- `@xlink:actuate` Actuating the Link
- `@xlink:href` Href (Linking Mechanism)
- `@xlink:role` Role of the Link
- `@xlink:show` Showing the Link
- `@xlink:title` Title of the Link
- `@xlink:type` Type of Link
- `@xml:base` Base
- `@xml:lang` Language
- `@xmlns:xlink` XLink Namespace Declaration

Content model:
Text, numbers, or special characters, zero or more

10.4.210 `<volume-series>` Volume Series
Series number of a journal volume for the rare case where a single journal has multiple volumes with the same volume number.

Attributes:
- `@content-type` Type of Content
- `@id` Document Internal Identifier
- `@specific-use` Specific Use
- `@xml:base` Base
- `@xml:lang` Language

Content model:
Text, numbers, or special characters, zero or more

10.4.211 `<xref>` X (cross) Reference
Reference to an object within the document (for example, a table, a bibliographic citation).
Attributes:
@alt Alternative Text
@id Document Internal Identifier
@ref-type Type of Cross-Reference
@rid Reference to an Identifier
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Any combination of:
• Text, numbers, or special characters
• Emphasis Elements
  ◦ <bold> Bold
  ◦ <fixed-case> Fixed Case
  ◦ <italic> Italic
  ◦ <monospace> Monospace Text (Typewriter Text)
  ◦ <overline> Overline
  ◦ <roman> Roman
  ◦ <sans-serif> Sans Serif
  ◦ <sc> Small Caps
  ◦ <strike> Strike Through
  ◦ <underline> Underline
  ◦ <ruby> Ruby Annotation Wrapper
• <named-content> Named Special (Subject) Content
• <styled-content> Styled Special (Subject) Content
• Baseline Change Elements
  ◦ <sub> Subscript
  ◦ <sup> Superscript

10.4.212 <year> Year
Representation, usually numerical, of a calendar year.

Attributes:
@calendar Calendar
@content-type Type of Content
@id Document Internal Identifier
@iso-8601-date ISO-8601 Formatted Date
@specific-use Specific Use
@xml:base Base
@xml:lang Language

Content model:
Text, numbers, or special characters

10.5 Attributes
Each attribute in the Tag Set is listed and identified, and specifics of the model of the attribute in this Tag Set are provided.

Each attribute is identified with a name, expanded information name, and definition, as it is listed in Section 7, Tag Suite Components. For some attributes a “Usage” section provides additional information on how the attribute is intended to be used or interpreted.

Following that appears the modeling information specific to this Tag Set. For attributes that are associated with only one element, or for which the usage is the same for all elements in the Tag Set, there appears:
• 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A brief note of what is in the cell, mostly for use by accessibility software.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Brief name for the type of abstract, such as “short”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>center</td>
<td>Center align the cell contents.</td>
</tr>
<tr>
<td>char</td>
<td>Align the text on the character identified with the @char attribute.</td>
</tr>
<tr>
<td>justify</td>
<td>Fully justify cell contents (right and left justification).</td>
</tr>
<tr>
<td>left</td>
<td>Left justify cell contents.</td>
</tr>
<tr>
<td>right</td>
<td>Right justify cell contents.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Simple textual words or phrases provided as a textual alternative to its element, for example, a phrase to be pronounced by screen readers.</td>
</tr>
</tbody>
</table>

### 10.5.5 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>stack</td>
<td>The multiple subscripts or superscripts should be placed one above the other as compactly as possible.</td>
</tr>
<tr>
<td>stagger</td>
<td>The multiple subscripts or superscripts should be stretched out in a line.</td>
</tr>
</tbody>
</table>

### 10.5.6 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of article, for example, “research-article”.</td>
</tr>
</tbody>
</table>

### 10.5.7 @assigning-authority Authority Responsible for an Identifier

Names the authority (such as CrossRef, GenBank, or PDB) that assigned the identifier or is responsible for the identifier.

In elements `<ext-link>` and `<pub-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The name of the organization assigning the identifier.</td>
</tr>
</tbody>
</table>

### 10.5.8 @authenticated Authenticated

The authority associated with this ID type (named in @contrib-id-type) has authenticated the value of this ID.

In element `<contrib-id>`, this attribute will be assigned the value false by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>true</td>
<td>This contributor identifier has been marked by the issuing authority as authenticated.</td>
</tr>
<tr>
<td>false</td>
<td>No guarantee has been made about this contributor identifier.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of award, such as “contract” or “grant”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the conceptual axis or a comma-separated list of axis names.</td>
</tr>
</tbody>
</table>

10.5.11 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the position of the inline graphic.</td>
</tr>
</tbody>
</table>

10.5.12 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the border around the table.</td>
</tr>
</tbody>
</table>

10.5.13 @calendar Calendar
Name of the calendar used in naming a date such as a publication date, for example, “Gregorian”, “Japanese” (Emperor years), or “Thai Buddha”.

In this Tag Set, many of the date elements, such as <conf-date> and <year>, may take a @calendar attribute to indicate the calendar in which the date is given. For example, a calendar might be named as:

- Arabic-Hijrah
- Chinese
- English-Hijrah
- Gregorian
- Japanese
- Korean
- Persian
Here is an example of a year and calendar in Pinyin:

Neither a date nor a calendar need be stated in English. The element that holds the @calendar attribute may also take an @xml:lang attribute to name the language or script of the element content. For example, here is a year from the traditional Chinese calendar, in which both the @calendar and the year itself are given in Chinese:

In elements <access-date>, <conf-date>, <date>, <date-in-citation>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name of the calendar used in the date, for example, “Gregorian”.</td>
</tr>
</tbody>
</table>

10.5.14 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the cell padding.</td>
</tr>
</tbody>
</table>

10.5.15 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>Thickness, measured in pixels, of the space between cells in a table.</td>
</tr>
</tbody>
</table>

10.5.16 @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>, and <thead>, and <tr>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>When used in conjunction with align=&quot;char&quot;, the contents of the table entry are aligned relative to the character specified by this attribute.</td>
</tr>
</tbody>
</table>

10.5.17 @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>`, `<tfoot>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>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).</td>
</tr>
</tbody>
</table>

### 10.5.18 @code-type Type of Code

The type of this code, used to categorize or describe the code.

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Typically a descriptive word such as “pseudo-code” or “scripting” that describes the type of language (not the name of the language) in which the code is written.</td>
</tr>
</tbody>
</table>

### 10.5.19 @code-version Code Version

Version of this program or code fragment.

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Version of the program (code) that is shown inside the <code>&lt;code&gt;</code> element, for example, “25.1 second patch”.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase that describes the role that the collaborators played in the publication, for example, “authors”.</td>
</tr>
</tbody>
</table>

### 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 XHTML `<colspan>` attribute.)

In elements `<td>` and `<th>`, this attribute will be assigned the value `1` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>How many column widths this cell will span, for example, “3”.</td>
</tr>
</tbody>
</table>

### 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.
In elements `<def-list>` and `<list>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>Points to the existing identifier.</td>
</tr>
</tbody>
</table>

### 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 element `<contrib-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase naming or describing the contribution, such as “author”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>This author (or other contributor) is not a corresponding author.</td>
</tr>
<tr>
<td>yes</td>
<td>This author (or other contributor) is a corresponding author.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting number</td>
<td>The number of pages being counted, for example, “5”.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An abbreviation for a country, typically using the ISO 3166-1 two-letter alphabetic codes, for example, “US” for the United States of America.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An abbreviation for a currency, typically using the ISO 4217 three-letter alphabetic codes, for example, “USD” for the United States Dollar.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The contributor was living when the document was published.</td>
</tr>
<tr>
<td>yes</td>
<td>The contributor had died by the time the document was published.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A rough visual description of the appearance of the &lt;private-char&gt; character, for example, “Greek capital letter omega with tonos”.</td>
</tr>
</tbody>
</table>

10.5.33 @designator Designator of the Edition

The edition number as an unadorned numeric or alphabetic value.

In elements <edition> and <version>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The numeral or alphabetic character that indicates the edition number</td>
<td>The straight unadorned edition number, for machine processing. Typically this is a number such as “4” or an alphabetic character such as “A”.</td>
</tr>
</tbody>
</table>

10.5.34 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>An identifier for the document that contains the related object(&lt;related-object&gt;).</td>
</tr>
</tbody>
</table>

10.5.35 @document-id-type Document Identifier Type

Type of document identifier (for example, a DOI or a publisher’s identifier) named in the @document-id attribute of the <related-object> element to identify a document.
In element `<related-object>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The type of document identifier of the related object, for example, a DOI.</td>
<td>The type of document identifier named in the @document-id attribute for a <code>&lt;related-object&gt;</code> element. This attribute qualifies the @document-id attribute.</td>
</tr>
</tbody>
</table>

### 10.5.36 @document-type Document Type

Type of document being described by the `<related-object>` element.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of related object, for example, “article” for a journal article.</td>
</tr>
</tbody>
</table>

### 10.5.37 @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 1.1 (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The NISO JATS 1.1 (ANSI NISO Z39.96-2015) of the Article Authoring Tag Set is being used.</td>
</tr>
</tbody>
</table>

### 10.5.38 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The value of the elocation identifier.</td>
</tr>
</tbody>
</table>

### 10.5.39 @end_date End Date

Date on which the document stops being free-to-read or ends the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In element `<ali:free_to_read>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document stops being free-to-read. If this attribute is not used, it indicates that the document is permanently free-to-read.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>This contributor did not participate equally with all other contributors.</td>
</tr>
<tr>
<td>yes</td>
<td>This contributor participated equally with all other contributors.</td>
</tr>
</tbody>
</table>
10.5.41 @executable Executable
Indicates whether or not the code snippet to which the attribute is attached is intended for direct execution.

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The code cannot or should not be executed.</td>
</tr>
<tr>
<td>yes</td>
<td>The code is intended to be run.</td>
</tr>
</tbody>
</table>

10.5.42 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of link, for example, “ftp” or “uri”.</td>
</tr>
</tbody>
</table>

10.5.43 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of object shown in the figure, for example, “diagram”, “chart”, or “map”.</td>
</tr>
</tbody>
</table>

10.5.44 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>abbr</td>
<td>Abbreviations.</td>
</tr>
<tr>
<td>com</td>
<td>Communicated-by information.</td>
</tr>
<tr>
<td>con</td>
<td>Contributed-by information.</td>
</tr>
<tr>
<td>conflict</td>
<td>Conflict of interest statements.</td>
</tr>
<tr>
<td>corresp</td>
<td>Corresponding author information not identified separately, but merely footnoted.</td>
</tr>
<tr>
<td>current-aff</td>
<td>Contributor’s current affiliation.</td>
</tr>
<tr>
<td>deceased</td>
<td>Person has died since article was written.</td>
</tr>
<tr>
<td>edited-by</td>
<td>Contributor has the role of an editor.</td>
</tr>
<tr>
<td>equal</td>
<td>Contributed equally to the creation of the document.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>financial-disclosure</td>
<td>Statement of funding or denial of funds received in support of the research on which an article is based.</td>
</tr>
<tr>
<td>on-leave</td>
<td>Contributor is on sabbatical or other leave of absence.</td>
</tr>
<tr>
<td>other</td>
<td>Some footnote type, other than those enumerated.</td>
</tr>
<tr>
<td>participating-researchers</td>
<td>Contributor was a researcher for an article.</td>
</tr>
<tr>
<td>present-address</td>
<td>Contributor’s current address.</td>
</tr>
<tr>
<td>presented-at</td>
<td>Conference, colloquium, or other occasion at which this paper was presented.</td>
</tr>
<tr>
<td>presented-by</td>
<td>Contributor who presented the material.</td>
</tr>
<tr>
<td>previously-at</td>
<td>Contributor’s previous location or affiliation.</td>
</tr>
<tr>
<td>study-group-members</td>
<td>Contributor was a member of the study group for the research.</td>
</tr>
<tr>
<td>supplementary-material</td>
<td>Points to or describes supplementary material for the article.</td>
</tr>
<tr>
<td>supported-by</td>
<td>Research upon which an article is based was supported by some entity.</td>
</tr>
</tbody>
</table>

### 10.5.45 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The offset of the character into a glyph table.</td>
</tr>
</tbody>
</table>

### 10.5.46 @fontname Font Name

Name of the font.

In element `<glyph-data>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A name for the font.</td>
</tr>
</tbody>
</table>

### 10.5.47 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A word</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 10.5.48 @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.
### 10.5.49 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An identifier (IDREF)</td>
<td>The pointing uses the ID/IDREF mechanism, using the @glyph-data attribute of the <code>&lt;glyph-ref&gt;</code> element to point to the @id attribute of an existing <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

### 10.5.50 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to (contains) a list of one or more IDs of rows and columns that supply header information.</td>
</tr>
</tbody>
</table>

### 10.5.51 @id Document Internal Identifier

Unique internal identifier of an element; allows element to be cross-referenced (made into a link). Value must be unique across a document, not just for an element type.

In element `<target>`, this attribute *must* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An XML identifier (ID)</td>
<td>A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.</td>
</tr>
</tbody>
</table>

In elements `<abbrev>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alternatives>, <annotation>, <anonymous>, <app>, <app-group>, <article>, <article-meta>, <article-title>, <attrib>, <author-comment>, <award-group>, <award-id>, <back>, <bio>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, ...
Initial(s) for the surname or the given names of a person.

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.

### 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.*

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An XML identifier (ID)</td>
<td>A unique identifier for the element. XML parsers can verify that an element pointing to one of these is pointing to a valid ID.</td>
</tr>
</tbody>
</table>

### 10.5.53 @institution-id-type Type of Institution Identifier

Type or source of the institution identifier, such as ISNI or Ringgold.

*In element <institution-id>, this attribute may be used if the element is used.*
### 10.5.54 @iso-8601-date ISO-8601 Formatted Date

A machine-processable, ISO 8601 formatted date value ("YYYY-MM-DDThh:mm:ss") for a JATS date-specific element, whether the date be specified as text, an ISO date, a partial date, or as any other date format. If the date given in the content of the element is in a non-Gregorian calendar, this attribute will hold the Gregorian calendar equivalent of that date.

In elements `<access-date>`, `<conf-date>`, `<date>`, `<date-in-citation>`, and `<year>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 standard date format (&quot;YYYY-MM-DDThh:mm:ss&quot;) for the date given in the element, for example, &quot;2015-07-15&quot;.</td>
</tr>
</tbody>
</table>

### 10.5.55 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The number of the journal issue, such as &quot;48&quot;.</td>
</tr>
</tbody>
</table>

### 10.5.56 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A journal abbreviation or other journal identifier.</td>
</tr>
</tbody>
</table>

### 10.5.57 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Word or phrase that identifies the organization or service who assigned the identifier (for example, &quot;index&quot; to indicate an abstracting or indexing service) or names the type of identifier (for example, &quot;doi&quot;).</td>
</tr>
</tbody>
</table>
10.5.58 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The source of keywords. This may be an organization (such as &quot;IEEE&quot;) or the name of a thesaurus, subject index, or ontology (such as &quot;MESH&quot;).</td>
</tr>
</tbody>
</table>

10.5.59 @language Code Language

Programming or scripting language in which this code is written, e.g. "javascript", for code written in "Javascript 3.0". (The "3.0" is recorded in the @language-version attribute.)

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The lower case name of the programming or scripting language</td>
</tr>
</tbody>
</table>

10.5.60 @language-version Code Language Version

Version of the language in which this code is written, e.g. "3.0", for code written in "Javascript 3.0". (The language name "javascript" is recorded in the @language attribute.)

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The version of the language in the code sample, such as &quot;3.0&quot;, &quot;8A&quot;, etc.</td>
</tr>
</tbody>
</table>

10.5.61 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of license, for example, &quot;open-access&quot; for a license permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited; or &quot;ccc&quot; for a Copyright Clearance Center statement.</td>
</tr>
</tbody>
</table>

10.5.62 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of relationship between the related object and the current document.</td>
</tr>
</tbody>
</table>

### 10.5.63 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 10.5.64 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>bullet</td>
<td>Unordered list in which item order has no meaning, and the prefix character for each item is a bullet or other symbol.</td>
</tr>
<tr>
<td>order</td>
<td>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.</td>
</tr>
<tr>
<td>simple</td>
<td>Unordered list in which item order has no meaning, and there is no prefix character for each item.</td>
</tr>
</tbody>
</table>

### 10.5.65 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>cgm</td>
<td>Computer Graphics Metafile.</td>
</tr>
<tr>
<td>gif</td>
<td>CompuServe Graphic Interchange Format.</td>
</tr>
<tr>
<td>jpeg</td>
<td>Joint Photographic Experts Group raster.</td>
</tr>
<tr>
<td>png</td>
<td>Portable Network Graphics.</td>
</tr>
<tr>
<td>tiff</td>
<td>Tag Image File Format.</td>
</tr>
</tbody>
</table>

In elements `<graphic>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific mime subtype (from the November 2003 list).</td>
</tr>
</tbody>
</table>
10.5.66 @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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>image</td>
<td>Internet Assigned Numbers Authority (IANA) mimetype &quot;image&quot;.</td>
</tr>
</tbody>
</table>

In elements `<graphic>`, `<inline-supplementary-material>`, `<media>`, and `<supplementary-material>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The appropriate mime type for the object.</td>
</tr>
</tbody>
</table>

10.5.67 @name Name (Private Character)
This attribute is used for use with `<private-char>`, to contain the unique name for the private character being defined.

In element `<private-char>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>For use with <code>&lt;private-char&gt;</code>, 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, &quot;NORTHWEST SOUTHEAST ARROW&quot;).</td>
</tr>
</tbody>
</table>

10.5.68 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>eastern</td>
<td>The name will both be displayed and sorted/inverted with the family name preceding the given name.</td>
</tr>
<tr>
<td>given-only</td>
<td>The single name provided is a given name, not a family name/surname. The single name will be both the sort and display name.</td>
</tr>
<tr>
<td>islensk</td>
<td>The name will both be displayed and sorted/inverted with the given name preceding the family name.</td>
</tr>
<tr>
<td>western</td>
<td>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.</td>
</tr>
</tbody>
</table>

10.5.69 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The identifier of the text or graphic object for a <code>&lt;related-object&gt;</code> element.</td>
</tr>
</tbody>
</table>
10.5.70 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of the identifier, for example, “ID” for an XML attribute of type ID.</td>
</tr>
</tbody>
</table>

10.5.71 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the type of related object, such as “table”.</td>
</tr>
</tbody>
</table>

10.5.72 @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>, <code>, <fig>, <graphic>, <media>, <preformat>, <supplementary-material>, and <table-wrap>, this attribute will be assigned the value portrait by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>landscape</td>
<td>Indicates that the object should be rotated by 90 degrees.</td>
</tr>
<tr>
<td>portrait</td>
<td>Indicates that the object should not be rotated by 90 degrees.</td>
</tr>
</tbody>
</table>

10.5.73 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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”.</td>
</tr>
</tbody>
</table>

10.5.74 @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.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>allauthors</td>
<td>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.</td>
</tr>
<tr>
<td>assignee</td>
<td>Persons to whom a patent is awarded.</td>
</tr>
<tr>
<td>author</td>
<td>Content creators.</td>
</tr>
<tr>
<td>compiler</td>
<td>Persons who put together a composite work from multiple sources.</td>
</tr>
<tr>
<td>curator</td>
<td>Person or group responsible for data curation or archival curation.</td>
</tr>
<tr>
<td>director</td>
<td>Directors.</td>
</tr>
<tr>
<td>editor</td>
<td>Content editors.</td>
</tr>
<tr>
<td>guest-editor</td>
<td>Content editors that have been invited to edit all or part of a work.</td>
</tr>
<tr>
<td>inventor</td>
<td>Idea, software, or machine creators.</td>
</tr>
<tr>
<td>transed</td>
<td>Editors of a translated version of a work.</td>
</tr>
<tr>
<td>translator</td>
<td>Persons who translated the cited work from one language into another.</td>
</tr>
</tbody>
</table>

### 10.5.75 @platforms Platforms

Name(s) of hardware and/or software platform(s) on which the `<code>` is intended to run. It is assumed that each such platform will have a one-word “name”, and multiple platform names will be separated by spaces.

In element `<code>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Platform on which the <code>&lt;code&gt;</code> is intended to run, for example, “Mac OSX”.</td>
</tr>
</tbody>
</table>

### 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>`, `<code>`, `<fig>`, `<graphic>`, `<media>`, `<preformat>`, `<supplementary-material>`, and `<table-wrap>`, this attribute will be assigned the value `float` by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>anchor</td>
<td>The object must remain in its exact location in the text flow.</td>
</tr>
<tr>
<td>background</td>
<td>The object (typically an image) is used as background displayed visually “behind” the narrative text.</td>
</tr>
<tr>
<td>float</td>
<td>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.</td>
</tr>
<tr>
<td>margin</td>
<td>In print, the object should be placed in the margin or gutter; online, the object should remain closely associated with the text.</td>
</tr>
</tbody>
</table>

### 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.
10.5.78 @preformat-type Type of Preformatted Text

Type of content contained in the `<preformat>` element (for example, shape poetry, ASCII art, hand-created tabulations using tabs and spaces, etc.).

Many journal tag sets make distinctions among different types of preformatted text (some by means of attributes, others with distinct elements). In this Tag Set, there are two elements to handle preformatted material:

- the `<code>` to hold computer programs, tagged XML documents, samples of XML DTDs or schemas, etc., and the
- `<preformat>` element, which contains non-code material such as ASCII art, man-machine dialogs, tabular material made with tabs and whitespace, and formatted poetry.

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 “ascii-art”.

In element `<preformat>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A word or phrase that describes the content or names the type of content for the <code>&lt;preformat&gt;</code> element, for example, “man-machine” for a man-machine dialog interaction or “poetry” for an e.e.cummings formatted textual poem.</td>
</tr>
</tbody>
</table>

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 element such as `<mixed-citation>` or `<element-citation>` (for example, on the `<pub-id>` element, which identifies a publication cited in a bibliographic reference list);
- on an object identifier element (<object-id>), 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>accession</td>
<td>(bioinformatics) a unique identifier given to a DNA or protein sequence record for tracking the sequence record and the associated sequence over time in a data repository.</td>
</tr>
<tr>
<td>ark</td>
<td>Archival Resource Key — a Uniform Resource Locator (URL) containing the word “ark” that is a multi-purpose identifier for information objects of any type</td>
</tr>
<tr>
<td>art-access-id</td>
<td>Generic article accession identifier for interchange and retrieval between archives.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>arxiv</td>
<td>arXiv archive of electronic preprints.</td>
</tr>
<tr>
<td>coden</td>
<td>Obsolete PDB/CCDC identifier (may be present on older articles).</td>
</tr>
<tr>
<td>doaj</td>
<td>Directory of Open Access Journals.</td>
</tr>
<tr>
<td>doi</td>
<td>Digital Object Identifier.</td>
</tr>
<tr>
<td>handle</td>
<td>Handle identifier, part of the Handle System for assigning, managing, and resolving persistent identifiers for digital objects and other resources on the Internet</td>
</tr>
<tr>
<td>isbn</td>
<td>International Standard Book Number.</td>
</tr>
<tr>
<td>manuscript</td>
<td>Identifier assigned to a manuscript.</td>
</tr>
<tr>
<td>medline</td>
<td>NLM Medline identifier.</td>
</tr>
<tr>
<td>other</td>
<td>None of the named identifiers.</td>
</tr>
<tr>
<td>pii</td>
<td>The original “Publisher Item Identifier” (PII) was a system to provide unique and concise identification for individual published documents with a highly specified string. The PII is no longer in common use (2010).</td>
</tr>
<tr>
<td>pmcid</td>
<td>PubMed Central identifier.</td>
</tr>
<tr>
<td>publisher-id</td>
<td>Publisher’s identifier, such as an “article-id”, “artnum”, “identifier”, “article-number”, “pub-id”, etc.</td>
</tr>
<tr>
<td>sici</td>
<td>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.).</td>
</tr>
<tr>
<td>std-designation</td>
<td>The official number of a standard, from a standards body such as ISO, NISO, IEEE, ASME, et al., for example, &quot;Z39.96-2015&quot;.</td>
</tr>
</tbody>
</table>

In elements `<issue-id>`, `<object-id>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of identifier “doi” or name or type of organization that created the identifier “pmcid” (PubMed Central identifier).</td>
</tr>
</tbody>
</table>

### 10.5.81 @publication-format Format of Publication

Format or medium of the document (for example, "print"). This element is used in several senses:

- to describe the format/medium for a publication date or other lifecycle date such as an acceptance date or a revision date,
- to describe the format/medium for an ISSN or ISBN, and
- to name the format/medium of the document being cited as part of a bibliographic reference.

**For use in Dates:** In 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>`, `<isbn>`, `<issn>`, `<mixed-citation>`, and `<nlm-citation>`, this attribute may be used if the element is used.
### 10.5.82 @publication-type Type of Referenced Publication


In elements `<element-citation>`, `<mixed-citation>`, and `<nlm-citation>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of publication, for example, “book”, “journal” (for a journal article), “patent”, or “data” (for a dataset, database, spreadsheet, et al.).</td>
</tr>
</tbody>
</table>

### 10.5.83 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of publisher, for example, “government”.</td>
</tr>
</tbody>
</table>

### 10.5.84 @pub-type Type of Publication

**Deprecated:** On the element `<pub-date>`, in the Archiving and Publishing Tag Sets, this `@pub-type` attribute is deprecated in favor of the `@publication-format` and `@date-type` attributes. In all Tag Sets, on the element `<issn>`, this `@pub-type` attribute is deprecated in favor of the `@publication-format` attribute (possibly with the `@content-type` attribute). Using two attributes enables the expression of both the format/medium and the lifecycle type of the publication instead of forcing the selection of one or the other.

**Definition:** Deprecated pre-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 publication in print.

The pre-combination of format, medium, and event 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type of print or electronic publication, for example, “epub” for electronic publication.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>aff</td>
<td>Affiliation.</td>
</tr>
<tr>
<td>app</td>
<td>Appendix.</td>
</tr>
<tr>
<td>bibr</td>
<td>Bibliographic reference (typically to a <code>&lt;ref&gt;</code> element, but it may point to a <code>&lt;element-citation&gt;</code> or <code>&lt;mixed-citation&gt;</code> if there are multiple citations inside the <code>&lt;ref&gt;</code> element).</td>
</tr>
<tr>
<td>boxed-text</td>
<td>Textbox or sidebar.</td>
</tr>
<tr>
<td>chem</td>
<td>Chemical structure (to a <code>&lt;chem-struct&gt;</code> or <code>&lt;chem-struct-wrap&gt;</code> element).</td>
</tr>
<tr>
<td>collab</td>
<td>Collaboration.</td>
</tr>
<tr>
<td>contrib</td>
<td>Contributor.</td>
</tr>
<tr>
<td>corresp</td>
<td>Corresponding author.</td>
</tr>
<tr>
<td>disp-formula</td>
<td>Display formula.</td>
</tr>
<tr>
<td>fig</td>
<td>Figure (to a <code>&lt;fig&gt;</code> element).</td>
</tr>
<tr>
<td>fn</td>
<td>Footnote.</td>
</tr>
<tr>
<td>kwd</td>
<td>Keyword.</td>
</tr>
<tr>
<td>list</td>
<td>List or list item (to a <code>&lt;list&gt;</code> or <code>&lt;list-item&gt;</code> element; also, possibly to a <code>&lt;def-list&gt;</code> or <code>&lt;def-item&gt;</code> element).</td>
</tr>
<tr>
<td>other</td>
<td>None of the items listed.</td>
</tr>
<tr>
<td>plate</td>
<td>Plate.</td>
</tr>
<tr>
<td>scheme</td>
<td>Scheme.</td>
</tr>
<tr>
<td>sec</td>
<td>Section.</td>
</tr>
<tr>
<td>statement</td>
<td>Statement.</td>
</tr>
<tr>
<td>supplementary-material</td>
<td>Supplementary information.</td>
</tr>
<tr>
<td>table</td>
<td>Table (to a <code>&lt;table-wrap&gt;</code> element).</td>
</tr>
<tr>
<td>table-fn</td>
<td>Table footnote.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The article type for the related article, for example, &quot;addendum&quot;.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The number of dots per inch of the bitmap.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more identifiers (IDREFS)</td>
<td>Points to one or more existing identifiers.</td>
</tr>
</tbody>
</table>

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 XHTML rowspan attribute.)

In elements <td> and <th>, this attribute will be assigned the value 1 by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How many rows this cell will span vertically, for example, “3”.</td>
</tr>
</tbody>
</table>

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 XHTML rules attribute.)

In element <table>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Rules on all rows and columns.</td>
</tr>
<tr>
<td>cols</td>
<td>Rules between columns.</td>
</tr>
<tr>
<td>groups</td>
<td>Rules between groups.</td>
</tr>
<tr>
<td>none</td>
<td>No rules in table.</td>
</tr>
<tr>
<td>rows</td>
<td>Rules between rows.</td>
</tr>
</tbody>
</table>

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 XHTML scope attribute.)

In elements <td> and <th>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>col</td>
<td>Provides header information for the rest of a column.</td>
</tr>
</tbody>
</table>
### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 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, ISBN, or publisher’s identifier) for a `<related-object>`.

In element `<related-object>`, this attribute *may* be used if the element is used.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>The type of identifier that names the source of the related object, for example, a DOI.</td>
<td>The type of document identifier named in the @source-id attribute for a (@source-id) attribute. This attribute qualifies the @source-id attribute.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

In element <related-object>, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Type of object that is the source of the related object (&lt;related-object&gt;), for example, “book”.</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A counting number</td>
<td>How many columns will have the same attributes, for example, “3”.</td>
</tr>
</tbody>
</table>

### 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>`, `<ali:free_to_read>`, `<ali:license_ref>`, `<alt-text>`, `<annotation>`, `<anonymous>`, `<app>`, `<app-group>`, `<article>`, `<attrib>`, `<author-comment>`, `<award-group>`, `<award-id>`, `<bio>`, `<hold>`, `<boxed-text>`, `<caption>`, `<chapter-title>`, `<chem-struct>`, `<chem-struct-wrap>`, `<city>`, `<code>`, `<collab>`, `<comment>`, `<conf-acronym>`, `<conf-date>`, `<conf-loc>`, `<conf-name>`, `<conf-sponsor>`, `<conf-theme>`, `<conference>`, `<contrib>`, `<contrib-group>`, `<contrib-id>`, `<copyright-holder>`, `<copyright-statement>`, `<copyright-year>`, `<country>`, `<data-title>`, `<date>`, `<date-incitation>`, `<day>`, `<def>`, `<def-item>`, `<def-list>`, `<degrees>`, `<disp-formula>`, `<disp-formula-group>`, `<disp-quote>`, `<edition>`, `<element-citation>`, `<elicitation-id>`, `<email>`, `<era>`, `<etal>`, `<ext-link>`, `<fax>`, `<fig>`, `<fixed-case>`, `<fn>`, `<fn-group>`, `<fpage>`, `<funding-group>`, `<funding-source>`, `<funding-statement>`, `<glossary>`, `<gov>`, `<graphic>`, `<inline-formula>`, `<inline-graphic>`, `<inline-supplementary-material>`, `<institution>`, `<institution-id>`, `<isbn>`, `<issn>`, `<issn-l>`, `<issue>`, `<issue-id>`, `<issue-part>`, `<issue-title>`, `<italic>`, `<journal-id>`, `<kwd-group>`, `<license>`, `<license-p>`, `<list>`, `<list-item>`, `<long-desc>`, `<lpage>`, `<media>`, `<mixed-citation>`, `<monospace>`, `<month>`, `<name>`, `<named-content>`, `<nlm-citation>`, `<object-id>`, `<on-behalf-of>`, `<open-access>`, `<overline>`, `<p>`, `<page-range>`, `<part-title>`, `<patent>`, `<person-group>`, `<phone>`, `<postal-code>`, `<prefix>`, `<preformat>`, `<price>`, `<principal-award-recipient>`, `<principal-investigator>`, `<private-char>`, `<product>`, `<pub-id>`, `<publisher-loc>`, `<publisher-name>`, `<crb>`, `<ref>`, `<ref-list>`, `<related-article>`, `<related-object>`, `<role>`, `<roman>`, `<rt>`, `<ruby>`, `<sans-serif>`, `<sc>`, `<season>`, `<sec>`, `<self-uri>`, `<series>`, `<size>`, `<source>`, `<speaker>`, `<speech>`, `<state>`, `<statement>`, `<std>`, `<std-organization>`, `<strike>`, `<string-name>`, `<styled-content>`, `<sub>`, `<subtitle>`, `<suffix>`, `<sup>`, `<supplement>`, `<supplementary-material>`, `<table>`, `<table-wrap>`, `<target>`, `<term>`, `<textual-form>`, `<time-stamp>`, `<title>`, `<trans-source>`, `<trans-title>`, `<underline>`, `<uri>`, `<verse-group>`, `<version>`, `<volume>`, `<volume-id>`, `<volume-series>`, `<xref>`, and `<year>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A specific distinction in the applicability of a particular element, for example, &quot;print-only&quot;.</td>
</tr>
</tbody>
</table>

**10.5.99 @start_date Start Date**

Date on which the document starts being free-to-read or begins the given license, as defined in NISO RP-22-2015, *Access License and Indicators*.

In elements `<ali:free_to_read>` and `<ali:license_ref>`, this attribute `may` be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The ISO 8601 date on which the document starts being free-to-read or begins the given license.</td>
</tr>
</tbody>
</table>

**10.5.100 @style Style (NISO JATS table model; MathML Tag Set)**

Names the concrete style or rendering to be applied to the element. This attribute can be used in several contexts:

- with the styled content element (<styled-content>), 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
In elements `<caption>`, `<col>`, `<colgroup>`, `<table>`, `<tbody>`, `<td>`, `<tfoot>`, `<th>`, `<thead>`, and `<tr>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the markup style for one of the elements within a table or for the entire table.</td>
</tr>
</tbody>
</table>

In element `<styled-content>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the inline markup style for the element.</td>
</tr>
</tbody>
</table>

### 10.5.101 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Name or description for the stylistic type, for example, &quot;green background&quot;.</td>
</tr>
</tbody>
</table>

### 10.5.102 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Textual description of the contents of a table, intended to be read to the audience for the table.</td>
</tr>
</tbody>
</table>

### 10.5.103 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The type or reason for the supplement, for example, &quot;conference&quot; or &quot;issue&quot;.</td>
</tr>
</tbody>
</table>

### 10.5.104 `@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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names/describes the rationale for designating a portion of text for cross-reference.</td>
</tr>
</tbody>
</table>
10.5.105 @toggle Toggle Switch
Specifies if the styling of the element it modifies should act as a toggle-switch. When the toggle-switch is on, the textual content of the element will always be visually set apart from its context. When the switch is off, the rendition is fixed to the style requested and will not change based on context.

In element <italic>, this attribute will be assigned the value yes by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the requested style, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis style, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In element <roman>, this attribute will be assigned the value no by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the same emphasis, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

In elements <bold>, <monospace>, <overline>, <sans-serif>, <sc>, <strike>, <styled-content>, and <underline>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>The element does not act as a toggle; the emphasized text remains in the same emphasis, no matter what the surrounding text does.</td>
</tr>
<tr>
<td>yes</td>
<td>The emphasis element acts as a toggle. If the surrounding text is set to the same emphasis, the text within this element will change to another emphasis style, so that the text will always be typographically distinct from its surroundings.</td>
</tr>
</tbody>
</table>

10.5.106 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>Names the units of measure in which the size is expressed, for example, “MB”.</td>
</tr>
</tbody>
</table>

10.5.107 @valign Vertical Alignment (NISO JATS table model)
Sets the vertical alignment inside a table cell. (This attribute is based on and intended to be converted easily to the XHMTL valign attribute.)

In elements <col>, <colgroup>, <tbody>, <td>, <tfoot>, <th>, <thead>, and <tr>, this attribute may be used if the element is used.
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>baseline</td>
<td>All cells in the same row as a cell whose @align 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.</td>
</tr>
<tr>
<td>bottom</td>
<td>Cell data is flush with the bottom of the cell.</td>
</tr>
<tr>
<td>middle</td>
<td>Cell data is centered vertically within the cell.</td>
</tr>
<tr>
<td>top</td>
<td>Cell data is flush with the top of the cell.</td>
</tr>
</tbody>
</table>

### 10.5.108 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 10.5.109 @width Width (NISO JATS table model)

This attribute can be used within a NISO JATS table (based on and designed to be converted easily to the XHTML 1.1 table model) to specify component width (as defined in the XHTML 1.1 table model to take advantage of existing software for table handling).

In elements `<col>`, `<colgroup>`, and `<table>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Within the NISO JATS Table model (<code>table</code>), 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.</td>
</tr>
</tbody>
</table>

### 10.5.110 @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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>The behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>onLoad</td>
<td>An application should retrieve the link at the same time a user obtains the initial document.</td>
</tr>
<tr>
<td>Value</td>
<td>Meaning</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>onRequest</td>
<td>An application should only retrieve the link after a user has physically triggered the retrieval, for example, clicked on the link.</td>
</tr>
<tr>
<td>other</td>
<td>The behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
</tbody>
</table>

**10.5.111 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (a URL) to a resource.</td>
</tr>
</tbody>
</table>

In elements `<abbrev>`, `<award-group>`, `<bio>`, `<chem-struct>`, `<collab>`, `<conference>`, `<contrib>`, `<element-citation>`, `<email>`, `<ext-link>`, `<funding-source>`, `<inline-supplementary-material>`, `<institution>`, `<issue-id>`, `<license>`, `<long-desc>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A pointer (a URL) to a resource.</td>
</tr>
</tbody>
</table>

**10.5.112 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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute *may* be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The URI of a resource that describes the role, reason, or rationale for the link.</td>
</tr>
</tbody>
</table>

**10.5.113 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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-
citation>, <product>, <pub-id>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>embed</td>
<td>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.</td>
</tr>
<tr>
<td>new</td>
<td>The link should be displayed as a new, separate window, frame, pane, or other presentation context.</td>
</tr>
<tr>
<td>none</td>
<td>The presentation behavior is unconstrained, and no other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>other</td>
<td>The presentation behavior is unconstrained, but other markup is generally available in the link to assist an application in deducing the retrieval mechanism.</td>
</tr>
<tr>
<td>replace</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 10.5.114 `@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>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>A descriptive, human-readable title that acts as a brief description of the link.</td>
</tr>
</tbody>
</table>

### 10.5.115 `@xlink:type` Type of Link

The kind of link used with an element. For all elements in this Tag Suite that can take links, this attribute may be either omitted or set to the word “simple”, which means that the link is a simple, one-ended link.

In elements <abbrev>, <award-group>, <bio>, <chem-struct>, <collab>, <conference>, <contrib>, <element-citation>, <email>, <ext-link>, <funding-source>, <graphic>, <inline-graphic>, <inline-supplementary-material>, <institution>, <issue-id>, <license>, <long-desc>, <media>, <mixed-citation>, <named-content>, <nlm-citation>, <product>, <pub-id>, <related-article>, <related-object>, <self-uri>, <supplementary-material>, <uri>, and <volume-id>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple</td>
<td>The link is an XML simple (one-ended) link.</td>
</tr>
</tbody>
</table>
10.5.116 @xml:base Base

Provides a base URI for identifiers in the XML document or a part of the XML document. Within this document, or portion of the document, all URIs are assumed to be built on the "base" provided as the value of this attribute. For example, if a document has an @xml:base of "http://jats.nlm.nih.gov/", a URI inside the document of "publishing/ rationale.html" would be processed as if it were "http://jats.nlm.nih.gov/publishing/ rationale.html". Values of @xml:base are inherited; meaning that if there is an @xml:base on a document and on a part of the document, uses inside the part of the document take the value of the part, not the whole.

In elements <abbrev>, <abstract>, <access-date>, <ack>, <addr-line>, <address>, <aff>, <aff-alternatives>, <ali:free_to_read>, <ali:license_ref>, <alt-text>, <alternatives>, <annotation>, <anonymous>, <app>, <app-group>, <article>, <article-meta>, <article-title>, <attrib>, <author-comment>, <author-group>, <award-id>, <back>, <bio>, <body>, <bold>, <boxed-text>, <break>, <caption>, <chapter-title>, <chem-struct>, <chem-struct-wrap>, <citation-alternatives>, <city>, <code>, <col>, <colgroup>, <collab>, <collab-alternatives>, <comment>, <compound-kwd>, <compound-kwd-part>, <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>, <data-title>, <date>, <date-in-citation>, <day>, <def>, <def-head>, <def-item>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <election-id>, <email>, <era>, <etal>, <ext-link>, <fax>, <fig>, <fixed-case>, <fn>, <fn-group>, <fpage>, <front>, <funding-group>, <funding-source>, <funding-statement>, <given-names>, <glossary>, <glyph-data>, <glyph-ref>, <gov>, <graphic>, <hr>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <institution-id>, <institution-wrap>, <isbn>, <issn>, <issn-1>, <issue>, <issue-id>, <issue-part>, <issue-title>, <italic>, <journal-id>, <kwd>, <kwd-group>, <label>, <license>, <license-p>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <mixed-citation>, <monospace>, <month>, <name>, <name-alternatives>, <named-content>, <nested-kwd>, <nlm-citation>, <object-id>, <on-behalf-of>, <open-access>, <overline>, <p>, <page-count>, <page-range>, <part-title>, <patent>, <permissions>, <person-group>, <phone>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <private-char>, <product>, <pub-id>, <publisher-loc>, <publisher-name>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <role>, <roman>, <crt>, <ruby>, <sans-serif>, <sc>, <season>, <sec>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <strike>, <string-name>, <styled-content>, <sub>, <subtitle>, <suffix>, <sup>, <supplement>, <supplementary-material>, <surname>, <table>, <table-wrap>, <table-wrap-foot>, <target>, <tbody>, <td>, <term>, <term-head>, <textual-form>, <tfoot>, <th>, <thead>, <time-stamp>, <title>, <title-group>, <tr>, <trans-source>, <trans-title>, <underline>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, numbers, or special characters</td>
<td>The base URI</td>
</tr>
</tbody>
</table>
10.5.117 @xml:lang Language
The language of the intellectual content of the element for which this is an attribute.

The value of this attribute must conform to IETF RFC 5646 (http://tools.ietf.org/html/rfc5646). For most uses, a
primary-language subtag such as “fr” (French), “en” (English), “de” (German), or “zh” (Chinese) is sufficient.
These values are NOT case sensitive, but current best practice uses all lower case. In addition to the primary
language subtag, the value of this attribute may contain other subtags as well. Values for the various subtags (which
can be used in certain combinations) can be obtained from the IANA Language Subtag Registry: http://
www.iana.org/assignments/language-subtag-registry.

In element <article>, this attribute will be assigned the value en by default.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>

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>, <city>, <code>, <collab>, <comment>, <conf-acronym>, <conf-date>, <conf-loc>, <conf-name>, <conf-num>, <conf-sponsor>, <conf-theme>, <conference>, <contrib-id>, <copyright-holder>, <copyright-statement>, <country>, <data-title>, <date-in-citation>, <day>, <def>, <def-item>, <def-list>, <degrees>, <disp-formula>, <disp-formula-group>, <disp-quote>, <edition>, <element-citation>, <email>, <era>, <etal>, <ext-link>, <fig>, <fn>, <fn-group>, <fpage>, <funding-group>, <funding-source>, <funding-statement>, <glossary>, <gov>, <graphic>, <inline-formula>, <inline-graphic>, <inline-supplementary-material>, <institution>, <institution-id>, <issue>, <issue-id>, <issue-part>, <issue-title>, <journal-id>, <kwdb-group>, <label>, <license>, <list>, <list-item>, <long-desc>, <lpage>, <media>, <mixed-citation>, <month>, <name>, <named-content>, <nlm-citation>, <on-behalf-of>, <open-access>, <p>, <pagerange>, <part-title>, <patent>, <person-group>, <postal-code>, <prefix>, <preformat>, <price>, <principal-award-recipient>, <principal-investigator>, <product>, <publisher-loc>, <publisher-name>, <rb>, <ref>, <ref-list>, <related-article>, <related-object>, <role>, <rt>, <season>, <sec>, <self-uri>, <series>, <size>, <source>, <speaker>, <speech>, <state>, <statement>, <std>, <std-organization>, <string-name>, <styled-content>, <subtitle>, <suffix>, <supplement>, <supplementary-material>, <table-wrap>, <target>, <term>, <textual-form>, <trans-source>, <trans-title>, <uri>, <verse-group>, <verse-line>, <version>, <volume>, <volume-id>, <volume-series>, <xref>, and <year>, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An alphanumeric string, which may include hyphens</td>
<td>An abbreviation for a natural language (such as “en” for English or “de” for German) or for a language and a script (“ja-Kana”).</td>
</tr>
</tbody>
</table>

10.5.118 @xmlns:ali NISO ALI Namespace (NISO Access License and Indicators)
This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the ALI (NISO
Access License and Indicators) elements. All namespace prefixes must be associated with a URL, and the prefix
“ali” has been set to the URL http://www.niso.org/schemas/ali/1.0/ as per the NISO ALI best practices
recommendation.
In elements `<ali:free_to_read>`, `<ali:license_ref>`, and `<article>`, this attribute must have the value `http://www.niso.org/schemas/ali/1.0/` (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>http://www.niso.org/schemas/ali/1.0/</code></td>
<td>The URI named in the NISO Access License and Indicators for the ALI elements.</td>
</tr>
</tbody>
</table>

**10.5.119 @xmlns:mml MathML Namespace Declaration**

This is not an attribute, but the namespace pseudo-attribute. The value provides a prefix to use for the MathML elements. All namespace prefixes must be associated with a URL, and the prefix “mml” has been set to the URL for the World Wide Web Consortium (W3C) MathML Tag Set. The same URL is the same for both MathML 2.0 and MathML 3.0.

In elements `<article>` and `<mml:math>`, this attribute must have the value `http://www.w3.org/1998/Math/MathML` (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>http://www.w3.org/1998/Math/MathML</code></td>
<td>The prefix “mml” has been set to the URL for the W3C MathML Tag Set.</td>
</tr>
</tbody>
</table>

**10.5.120 @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).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>http://www.w3.org/1999/xlink</code></td>
<td>The prefix “xlink” has been set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>

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>`, `<issue-id>`, `<license>`, `<long-desc>`, `<media>`, `<mixed-citation>`, `<named-content>`, `<nlm-citation>`, `<product>`, `<pub-id>`, `<related-article>`, `<related-object>`, `<self-uri>`, `<supplementary-material>`, `<uri>`, and `<volume-id>`, this attribute may be used if the element is used.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>http://www.w3.org/1999/xlink</code></td>
<td>When this attribute is used, the prefix “xlink” should be set to the URL for the W3C XLink Recommendation.</td>
</tr>
</tbody>
</table>

**10.5.121 @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 `@xsi_schemaLocation` attribute an included vocabulary requires. 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).
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.w3.org/2001/XMLSchema-instance">http://www.w3.org/2001/XMLSchema-instance</a></td>
<td>The prefix “xsi” has been set to the URL of the W3C XML Schema.</td>
</tr>
</tbody>
</table>

### 10.5.122 @xml:space Space

When printing or displaying the associated element, all white space (such as tabs, ordinary spaces, and line breaks) should be preserved.

In elements `<code>`, `<glyph-data>`, and `<preformat>`, this attribute *must* have the value `preserve` (as given below).

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>preserve</td>
<td>White space should be preserved. (This value is fixed and cannot be changed in a document.).</td>
</tr>
</tbody>
</table>

### 10.5.123 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number</td>
<td>An integer number of pixels, for example, “45”, that is the number of pixels in each row of the bitmap of the <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>

### 10.5.124 @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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The number of rows (for example, “25”) used to define the glyph in a <code>&lt;glyph-data&gt;</code> element.</td>
</tr>
</tbody>
</table>
Bibliography

(This Bibliography is not part of the ANSI/NISO Z39.96-2015, JATS: Journal Article Tag Suite. It is included for information only.)

Internet Assigned Numbers Authority (IANA), Language Subtag Registry, http://www.iana.org/assignments/language-subtag-registry
Internet Assigned Numbers Authority (IANA), MIME Media Types, http://www.iana.org/assignments/media-types/
ISO 3166-1, Codes for the representation of names of countries and their subdivisions — Part 1: Country codes
ISO 4217, Codes for the representation of currencies and funds
ISO 26324, Information and documentation — Digital object identifier system