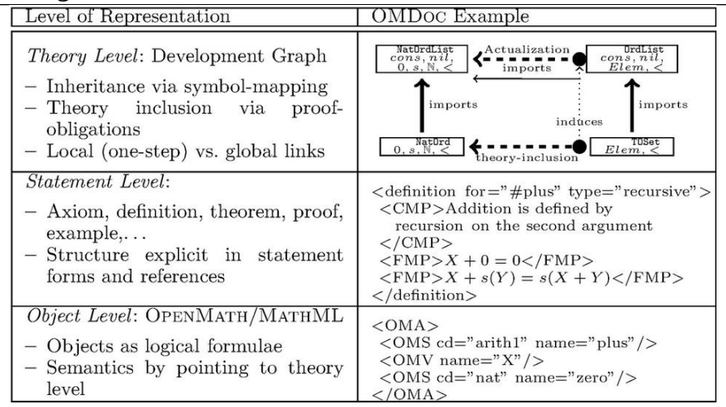
kohlhase-omdoc: table evidence

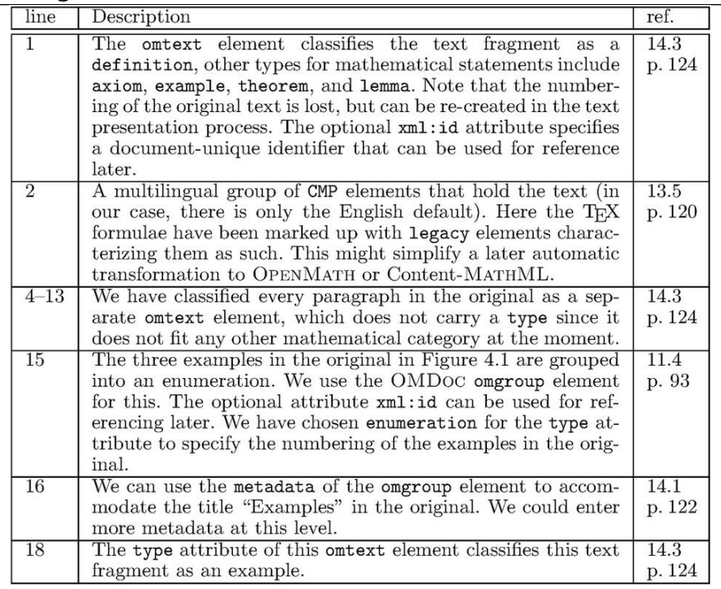
Tables

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_001	28	1.000	`\begin{tabular}[t]{|l|l|l|} \hline language & MathML & OpenMath \\ \hline by & W3C Math WG & OpenMath society \\ \hline origin & math for HTML & integration of CAS \\ \hline coverage & content + presentation; K14 & content; extensible \\ \hline status & Version 2.2e (VI 2003) & Version 2 (VI 2004) \\ \hline activity & maintenance & maintenance \\ \hline Info & http://w3c.org/Math/ & http://www.openmath.org/ \\ \hline \end{tabular}`	language | MathML | OpenMath by | W3C Math WG | OpenMath society origin | math for HTML | integration of CAS coverage | content + presentation; K14 | content; extensible status | Version 2.2e (VI 2003) | Version 2 (VI 2004) activity | maintenance | maintenance Info | http://w3c.org/Math/ | http://www.openmath.org/	language | MathML | OpenMath by | W3C Math WG | OpenMath society origin | math for HTML | integration of CAS coverage | content + presentation; K-14 | content; extensible status | Version 2.2e (VI 2003) | Version 2 (VI 2004) activity | maintenance | maintenance Info | http://w3c.org/Math/ | http://www.openmath.org/

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_002 **[conf 0.000]**	41	■ 0.000	\begin{tabular}[t]{|l|l|} \hline Level of Representation & OMDoc Example \\ \hline \begin{tabular}[t]{l} Theory Level: Development Graph \begin{itemize} \item[-] Inheritance via symbol-mapping \item[-] Theory inclusion via proofobligations \item[-] Local (one-step) vs. global links \end{itemize} \end{tabular} & \\ \hline \begin{tabular}[t]{l} Statement Level: \begin{itemize} \item[-] Axiom, definition, theorem, proof, example,... \item[-] Structure explicit in statement forms and references \end{itemize} \end{tabular} & \begin{tabular}[t]{l} \begin{itemize} \item[] <definition for="\#plus" type="recursive"> \item[] <CMP>Addition is defined by recursion on the second argument \item[] </CMP> \item[] <FMP> \(X+0=0</ \mathrm{FMP}>\) \item[] \(<\mathrm{FMP}>X+s(Y)=s(X+Y)</ \mathrm{FMP}>\) \end{itemize} \\ </definition> \end{tabular} \\ \hline \begin{tabular}[t]{l} Object Level: OpenMath/MathML \begin{itemize} \item[-] Objects as logical formulae \item[-] Semantics by pointing to theory level \end{itemize} \end{tabular} & \begin{tabular}[t]{l} \begin{itemize} \item[] <OMA> \item[] <OMS cd="arith1" name="plus"/> \item[] <OMV name="X"/> \item[] <OMS cd="nat" name="zero"/> \end{itemize} \\ </OMA> \end{tabular} \\ \hline \end{tabular}		
kohlhase-omdoc_TAB_003	50	■ 1.000	\begin{tabular}[t]{|l|l|l|} \hline line & Description & ref. \\ \hline 1 & This document is an XML 1.0 file that is encoded in the UTF-8 encoding. & \\ \hline \end{tabular}	line | Description | ref. 1 | This document is an XML 1.0 file that is encoded in the UTF-8 encoding. |	line | Description | ref. 1 | This document is an XML 1.0 file that is encoded in the UTF-8 encoding. |

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_004	51	0.905	\begin{tabular}[t]{|l|l|l|} \hline 2,3 & The parser is told to use a document type definition for validation. The string omdoc specifies the name of the root element, the identifier PUBLIC specifies that the DTD (we use the "OMDoc basic" DTD; see Subsection 22.3.1), which can be identified by the public identifier in the first string and looked up in an XML catalog or (if that fails) can be found at the URL specified in the second string. A DTD declaration is not strictly needed for an OMDoc document, but is recommended, since the DTD supplies default values for some attributes. & 24.1 p. 228 \\ \hline 4 & In general, XML files can contain as much whitespace as they want between elements, here we have used it for structuring the document. & \\ \hline 5 & Start tag of the root element of the document. It declares the version (OMDoc 1.2) via the version, and an identifier of the document using the xml:id attribute. The optional modules specifies the sub-language used in this document. This is used when no DTD is present (see Subsection 22.3.1). & 11.1 p. 90 \\ \hline 6,7 & the namespace prefix declarations for the Dublin Core, Creative Commons, and OpenMath namespaces. They declare the prefixes dc:, cc:, and om:, and bind them to the specified URIs. We will need the OpenMath namespace	3	2,3 | The parser is told to use a document type definition for validation. The string `omdoc` specifies the name of the root element, the identifier `PUBLIC` specifies that the DTD (we use the "OMDoc basic" DTD; see Subsection 22.3.1), which can be identified by the public identifier in the first string and looked up in an XML catalog or (if that fails) can be found at the URL specified in the second string. A DTD declaration is not strictly needed for an OMDoc document, but is recommended, since the DTD supplies default values for some attributes. | 24.1 p. 228 4 | In general, XML files can contain as much whitespace as they want between elements, here we have used it for structuring the document. | 5 | Start tag of the root element of the document. It declares the version (OMDoc 1.2) via the `version`, and an identifier of the document using the `xml:id` attribute. The optional `modules` specifies the sub-language used in this document. This is used when no DTD is present (see Subsection 22.3.1). | 11.1 p. 90 6,7 | the namespace prefix declarations for the Dublin Core, Creative Commons, and OpenMath namespaces. They declare the prefixes `dc:`, `cc:`, and `om:`, and bind them to the specified URIs. We will need the OpenMath namespace only in the third markup step described in Section 4.3, but spurious namespace prefix declarations are not a problem in the XML world. | 10 p. 83 8 | the namespace declaration for the document; if not prefixed, all elements live in the OMDoc namespace. | 10.1 p. 83 9–29 | The metadata for the whole document in Dublin Core format | 11.2 p. 92 10 | The title of the document | 12.1 p. 98 11 | The document creator, here in the role of a translator | 12.2 p. 101 12 | The date and time of first creation of the document in ISO 8601 norm format. | 12.1 p. 99 13 | The date and time of the last update to the document in ISO 8601 norm format. | 12.1 p. 99 14–16 | A short description of the contents of the document | 12.1 p. 99 17–19 | Here we acknowledge that the OMDoc document is just a translation from an earlier work. | 12.1 p. 100 20 | The type of the document, this can be `Dataset` (un-ordered mathematical knowledge) or `Text` (arranged for human consumption). | 12.1 p. 100 21 | The format/MIME type [FB96] of the document, for OMDoc, this is `application/omdoc+xml`. | 12.1 p. 100 22 | The copyright resides with the creator of the OMDoc document | 12.1 p. 100 23–28 | The creator licenses the document to the world under certain conditions as specified in the Creative Commons license specified in this element. | 12.3 p. 102

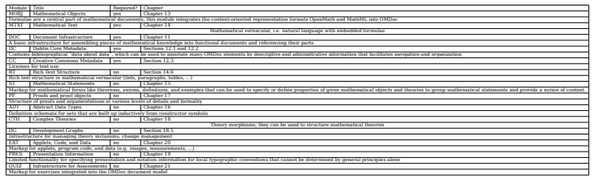
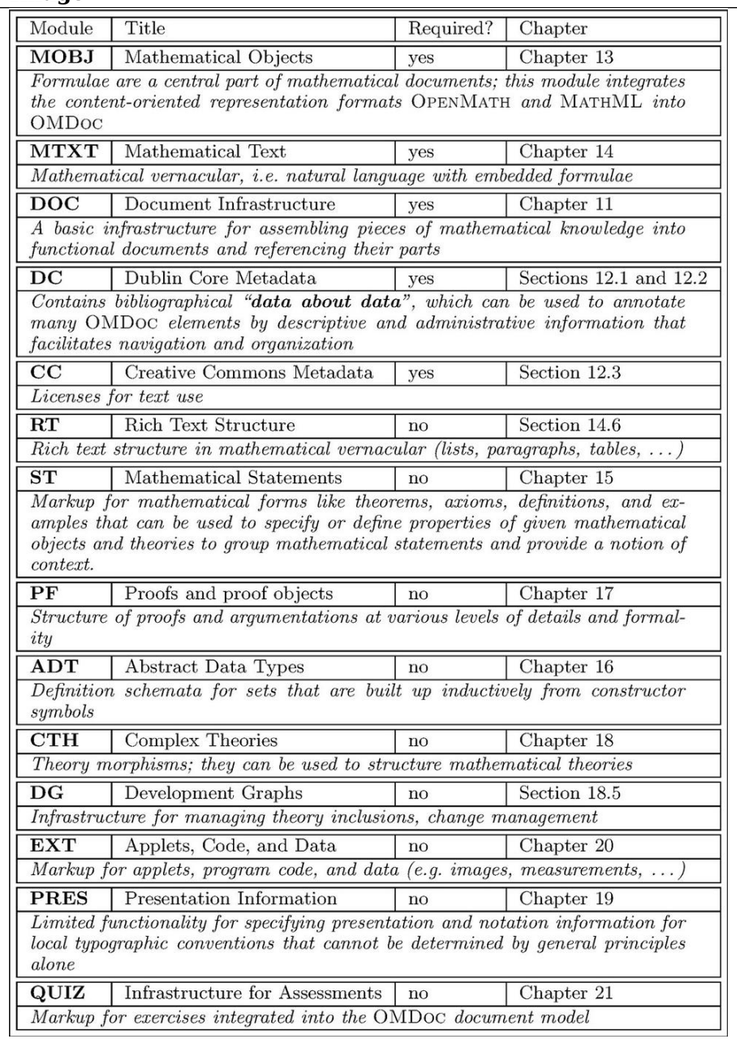
Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_005	52	0.221	\begin{tabular}[t]{|l|l|l|} \hline 24,25 & The cc:permissions element gives the world the permission to reproduce and distribute it freely. Furthermore the license grants the public the right to make derivative works under certain conditions. & 12.3 p. 103 \\ \hline 26 & The cc:prohibitions can be used to prohibit certain uses of the document, but this one is unencumbered. & 12.3 p. 103 \\ \hline 27 & The cc:requirements states conditions under which the license is granted. In our case the licensee is required to keep the copyright notice and license notices intact during distribution, to give credit to the copyright holder, and that any derivative works derived from this document must be licensed under the same terms as this document (the copyleft clause). & 12.3 p. 103 \\ \hline 31-37 & The omtext element is used to mark up text fragments. Here, we have simply used a single omtext to classify the whole text in the fragment as unspecific "text". & 14.3 p. 124 \\ \hline 32-36 & The CMP element holds the actual text in a multilingual group. Its xml:lang specifies the language. If the document is used with a DTD or an XML schema (as we are) this attribute is redundant, since the default value given by the DTD or schema is en. More keywords in other languages can be given by adding more CMP elements. & 14.1 p. 122 \\ \hline 33-35 & The text of the \(\mathrm{APT}_{\mathrm{E}} \mathrm{X}\) fragment we are migrating. For simplicity we do not change the text, and leave that to later stages of the migration. & \\ \hline 38 & The closing tag of the root omdoc element. There may not be text after this in the file. & 11.1 p. 90 \\ \hline \end{tabular}		<table><tr><td>24,25</td><td>The cc:permissions element gives the world the permission to reproduce and distribute it freely. Furthermore the license grants the public the right to make derivative works under certain conditions.</td><td>12.3 p. 103</td></tr><tr><td>26</td><td>The cc:prohibitions can be used to prohibit certain uses of the document, but this one is unencumbered.</td><td>12.3 p. 103</td></tr><tr><td>27</td><td>The cc:requirements states conditions under which the license is granted. In our case the licensee is required to keep the copyright notice and license notices intact during distribution, to give credit to the copyright holder, and that any derivative works derived from this document must be licensed under the same terms as this document (the copyleft clause).</td><td>12.3 p. 103</td></tr><tr><td>31-37</td><td>The omtext element is used to mark up text fragments. Here, we have simply used a single omtext to classify the whole text in the fragment as unspecific “text”.</td><td>14.3 p. 124</td></tr><tr><td>32-36</td><td>The CMP element holds the actual text in a multilingual group. Its xml:lang specifies the language. If the document is used with a DTD or an XML schema (as we are) this attribute is redundant, since the default value given by the DTD or schema is en. More keywords in other languages can be given by adding more CMP elements.</td><td>14.1 p. 122</td></tr><tr><td>33–35</td><td>The text of the LaTeX fragment we are migrating. For simplicity we do not change the text, and leave that to later stages of the migration.</td><td></td></tr><tr><td>38</td><td>The closing tag of the root omdoc element. There may not be text after this in the file.</td><td>11.1 p. 90</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_006	53	1.000	\begin{tabular}[t]{|l|l|l|} \hline line & Description & ref. \\ \hline 1 & The omtext element classifies the text fragment as a definition, other types for mathematical statements include axiom, example, theorem, and lemma. Note that the numbering of the original text is lost, but can be re-created in the text presentation process. The optional xml:id attribute specifies a document-unique identifier that can be used for reference later. & 14.3 p. 124 \\ \hline 2 & A multilingual group of CMP elements that hold the text (in our case, there is only the English default). Here the \(\mathrm{T}_{ \mathrm{E}} \mathrm{X}\) formulae have been marked up with legacy elements characterizing them as such. This might simplify a later automatic transformation to OpenMath or Content-MathML. & 13.5 p. 120 \\ \hline 4-13 & We have classified every paragraph in the original as a separate omtext element, which does not carry a type since it does not fit any other mathematical category at the moment. & 14.3 p. 124 \\ \hline 15 & The three examples in the original in Figure 4.1 are grouped into an enumeration. We use the OMDoc omgroup element for this. The optional attribute xml:id can be used for referencing later. We have chosen enumeration for the type attribute to specify the numbering of the examples in the original. & 11.4 p. 93 \\ \hline 16 & We can use the metadata of the omgroup element to accommodate the title "Examples" in the original. We could enter more metadata at this level. & 14.1 p. 122 \\ \hline 18 & The type attribute of this omtext element classifies this text fragment as an example. & 14.3 p. 124 \\ \hline \end{tabular}		

line	Description	ref.
1	The omtext element classifies the text fragment as a definition, other types for mathematical statements include axiom, example, theorem, and lemma. Note that the numbering of the original text is lost, but can be re-created in the text presentation process. The optional xml:id attribute specifies a document-unique identifier that can be used for reference later.	14.3 p. 124
2	A multilingual group of CMP elements that hold the text (in our case, there is only the English default). Here the TEX formulae have been marked up with legacy elements characterizing them as such. This might simplify a later automatic transformation to OpenMath or Content-MathML.	13.5 p. 120
4–13	We have classified every paragraph in the original as a separate omtext element, which does not carry a type since it does not fit any other mathematical category at the moment.	14.3 p. 124
15	The three examples in the original in Figure 4.1 are grouped into an enumeration. We use the OMDoc omgroup element for this. The optional attribute xml:id can be used for referencing later. We have chosen enumeration for the type attribute to specify the numbering of the examples in the original.	11.4 p. 93
16	We can use the metadata of the omgroup element to accommodate the title "Examples" in the original. We could enter more metadata at this level.	14.1 p. 122
18	The type attribute of this omtext element classifies this text fragment as an example.	14.3 p. 124

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_007	55	0.487	\begin{tabular}[t]{|l|l|l|} \hline line & Description & ref. \\ \hline 1-4 & \begin{tabular}[t]{l} The omdoc-basic document type definition is no longer sufficient for our purposes, since we introduce new symbols that can be used in other documents. The DTD for OMDoc content dictionaries (see Chapter 5), which allows this. Correspondingly, we would specify the value cd for the attribute module. \\ The part in line 4 is the internal subset of the DTD, which sets a parameter entity for the modularized DTD to instruct it to accept OpenMath elements in their namespace prefixed form. Of course a suitable namespace prefix declaration is needed as well. \end{tabular} & 22.3.2 p. 218 \\ \hline 5 & The start tag of a theory. We need this, since symbols and definitions can only appear inside theory elements. & 15.6 p. 149 \\ \hline 6,7 & We need to import the theory products to be able to use symbols from it in the definition below. The value of the from is a relative URI reference to a theory element much like the one in line 5. The other imports element imports the theory relation1 from the OpenMath standard content dictionaries \({ }^{1}\). Note that we do not need to import the theory sets here, since this is already imported by the theory products. & 15.6.1 p. 150 \\ \hline 9-11 & A symbol declaration: For every definition, OMDoc requires the declaration of one or more symbol elements for the concept that is to be defined. The name attribute is used to identify it. The dc:description element allows	6	line | Description | ref. 1–4 | The omdoc-basic document type definition is no longer sufficient for our purposes, since we introduce new symbols that can be used in other documents. The DTD for OMDoc content dictionaries (see Chapter 5), which allows this. Correspondingly, we would specify the value cd for the attribute module. The part in line 4 is the internal subset of the DTD, which sets a parameter entity for the modularized DTD to instruct it to accept OpenMath elements in their namespace prefixed form. Of course a suitable namespace prefix declaration is needed as well. | 22.3.2 p. 218 5 | The start tag of a theory. We need this, since symbols and definitions can only appear inside theory elements. | 15.6 p. 149 6,7 | We need to import the theory products to be able to use symbols from it in the definition below. The value of the from is a relative URI reference to a theory element much like the one in line 5. The other imports element imports the theory relation1 from the OpenMath standard content dictionaries[1]. Note that we do not need to import the theory sets here, since this is already imported by the theory products. | 15.6.1 p. 150 9–11 | A symbol declaration: For every definition, OMDoc requires the declaration of one or more symbol elements for the concept that is to be defined. The name attribute is used to identify it. The dc:description element allows to supply a multilingual (via the xml:lang attribute) group of keywords for the declared symbol | 15.2.1 p. 136 12 | Upon closer inspection it turns out that the definition in Listing 4.4 actually defines three concepts: “law of composition”, “composition”, and “magma”. Note that “composition” is just another name for the value under the law of composition, therefore we do not need to declare a symbol for this. Thus we only declare one for “law of composition”. | 15.2.1 p. 136 14 | A definition: the definition element carries a name attribute for reference within the theory. We need to reference the two symbols defined here in the for attribute of the definition element; it takes a whitespace-separated list of name attributes of symbol elements in the same theory as values. | 15.2.4 p.139 16 | We use an OpenMath object for the set E. It is an om:OMOBJ element with an om:OMV daughter, whose name attribute specifies the object to be a variable with name E. We have chosen to represent the set E as a variable instead of a constant (via an om:OMS element) in the theory, since it seems to be local to the definition. We will discuss this further in the next section, where we talk about formalization. | 13.1.1 p. 108

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_008	56	■ 0.448	\begin{tabular}[t]{|l|l|l|} \hline 17-21 & This om:0M0BJ represents the Cartesian product \(E \times E\) of the set \(E\) with itself. It is an application (via an om:0MA element) of the symbol for the binary Cartesian product relation to \(E\). & 13.1.1 p. 108 \\ \hline 18 & The symbol for the Cartesian product constructor is represented as an om:0MS element. The cd attribute specifies the theory that defines the symbol, and the name points to the symbol element in it that declares this symbol. The value of the cd attribute is a theory identifier. Note that this theory has to be imported into the current theory, to be legally used. & 13.1.1 p. 108 \\ \hline 22 & We use the term element to characterize the defined terms in the text of the definition. Its role attribute can used to mark the text fragment as a definiens, i.e. a concept that is under definition. & 14.5 p. 128 \\ \hline 24-28 & This object stands for \(f(x, y)\) & \\ \hline 30-39 & This object represents \((x, y) \in E \times E\). Note that we make use of the symbol for the elementhood relation from the OpenMath core content dictionary set1 and of the pairconstructor from the theory of products from the Bourbaki collection there. & \\ \hline \end{tabular}		<table><tr><td>17–21</td><td>This om:OMOBJ represents the Cartesian product $E \times E$ of the set E with itself. It is an application (via an om:OMA element) of the symbol for the binary Cartesian product relation to E.</td><td>13.1.1 p. 108</td></tr><tr><td>18</td><td>The symbol for the Cartesian product constructor is represented as an om:OMS element. The cd attribute specifies the theory that defines the symbol, and the name points to the symbol element in it that declares this symbol. The value of the cd attribute is a theory identifier. Note that this theory has to be imported into the current theory, to be legally used.</td><td>13.1.1 p. 108</td></tr><tr><td>22</td><td>We use the term element to characterize the defined terms in the text of the definition. Its role attribute can used to mark the text fragment as a definiens, i.e. a concept that is under definition.</td><td>14.5 p. 128</td></tr><tr><td>24–28</td><td>This object stands for $f(x, y)$</td><td></td></tr><tr><td>30–39</td><td>This object represents $(x, y) \in E \times E$. Note that we make use of the symbol for the elementhood relation from the OpenMath core content dictionary set1 and of the pairconstructor from the theory of products from the Bourbaki collection there.</td><td></td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_009	93	1.000	\begin{tabular}[t]{|l|l|l|l|} \hline Module & Title & Required? & Chapter \\ \hline MOBJ & Mathematical Objects & yes & Chapter 13 \\ \hline \multicolumn{4}{|l|}{Formulae are a central part of mathematical documents; this module integrates the content-oriented representation formats OpenMath and MathML into OMDoc} \\ \hline MTXT & Mathematical Text & yes & Chapter 14 \\ \hline \multicolumn{4}{|c|}{Mathematical vernacular, i.e. natural language with embedded formulae} \\ \hline DOC & Document Infrastructure & yes & Chapter 11 \\ \hline \multicolumn{4}{|l|}{A basic infrastructure for assembling pieces of mathematical knowledge into functional documents and referencing their parts} \\ \hline DC & Dublin Core Metadata & yes & Sections 12.1 and 12.2 \\ \hline \multicolumn{4}{|l|}{Contains bibliographical "data about data", which can be used to annotate many OMDoc elements by descriptive and administrative information that facilitates navigation and organization} \\ \hline CC & Creative Commons Metadata & yes & Section 12.3 \\ \hline \multicolumn{4}{|l|}{Licenses for text use} \\ \hline RT & Rich Text Structure & no & Section 14.6 \\ \hline \multicolumn{4}{|l|}{Rich text structure in mathematical vernacular (lists, paragraphs, tables, ...)} \\ \hline ST & Mathematical Statements & no & Chapter 15 \\ \hline \multicolumn{4}{|l|}{Markup for mathematical forms like theorems, axioms, definitions, and examples that can be used to specify or define properties of given mathematical objects and theories to group mathematical statements and provide a notion of context.} \\ \hline PF & Proofs and proof objects & no & Chapter 17 \\ \hline \multicolumn{4}{|l|}{Structure of proofs and argumentations at various levels of details and formality} \\ \hline ADT & Abstract Data Types & no & Chapter 16 \\ \hline \multicolumn{4}{|l|}{Definition schemata for sets that are built up inductively from constructor symbols} \\ \hline CTH & Complex Theories & no & Chapter 18 \\ \hline \multicolumn{4}{|l|}{Theory morphisms; they can be used to structure mathematical theories} \\ \hline DG & Development Graphs & no & Section 18.5 \\ \hline \multicolumn{4}{|l|}{Infrastructure for managing theory inclusions, change management} \\ \hline EXT & Applets, Code, and Data & no & Chapter 20 \\ \hline \multicolumn{4}{|l|}{Markup for applets, program code, and data (e.g. images, measurements, ...)} \\ \hline PRES & Presentation Information & no & Chapter 19 \\ \hline \multicolumn{4}{|l|}{Limited functionality for specifying presentation and notation information for local typographic conventions that cannot be determined by general principles alone} \\ \hline QUIZ & Infrastructure for Assessments & no & Chapter 21 \\ \hline \multicolumn{4}{|l|}{Markup for exercises integrated into the OMDoc document model} \\ \hline	 8	

Module	Title	Required?	Chapter
MOBJ	Mathematical Objects	yes	Chapter 13
Formulae are a central part of mathematical documents; this module integrates the content-oriented representation formats OpenMath *and* MathML *into* OMDoc			
MTXT	Mathematical Text	yes	Chapter 14
Mathematical vernacular, i.e. natural language with embedded formulae			
DOC	Document Infrastructure	yes	Chapter 11
A basic infrastructure for assembling pieces of mathematical knowledge into functional documents and referencing their parts			
DC	Dublin Core Metadata	yes	Sections 12.1 and 12.2
*Contains bibliographical "**data about data**", which can be used to annotate many* OMDoc *elements by descriptive and administrative information that facilitates navigation and organization*			
CC	Creative Commons Metadata	yes	Section 12.3
Licenses for text use			
RT	Rich Text Structure	no	Section 14.6
Rich text structure in mathematical vernacular (lists, paragraphs, tables, . . .)			
ST	Mathematical Statements	no	Chapter 15
Markup for mathematical forms like theorems, axioms, definitions, and examples that can be used to specify or define properties of given mathematical objects and theories to group mathematical statements and provide a notion of context.			
PF	Proofs and proof objects	no	Chapter 17
Structure of proofs and argumentations at various levels of details and formality			
ADT	Abstract Data Types	no	Chapter 16
Definition schemata for sets that are built up inductively from constructor symbols			
CTH	Complex Theories	no	Chapter 18
Theory morphisms; they can be used to structure mathematical theories			
DG	Development Graphs	no	Section 18.5
Infrastructure for managing theory inclusions, change management			
EXT	Applets, Code, and Data	no	Chapter 20
Markup for applets, program code, and data (e.g. images, measurements, . . .)			
PRES	Presentation Information	no	Chapter 19
Limited functionality for specifying presentation and notation information for local typographic conventions that cannot be determined by general principles alone			
QUIZ	Infrastructure for Assessments	no	Chapter 21
Markup for exercises integrated into the OMDoc *document model*			

<table>
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kohlhase-omdoc_TAB_024	136	0.922	`\begin{tabular}[t]{|l|l|l|l|} \hline Element & Optional Attributes & DC & Content \\ \hline p & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline ol & xml:id,style,class,index,verbalizes & + & li* \\ \hline ul & xml:id,style,class,index,verbalizes & + & li* \\ \hline li & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline dl & xml:id,style,class,index,verbalizes & + & di* \\ \hline di & xml:id,style,class,index,verbalizes & + & dt*,dd* \\ \hline dt & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline dd & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline idx & (xml:id|xref) & - & idt?,ide+ \\ \hline ide & index,sort-by,see,seealso,links & - & idp* \\ \hline idt & style,class & - & 《math vernacular》 \\ \hline idp & sort-by,see,seealso,links & - & 《math vernacular》 \\ \hline table & xml:id,style,class,index,verbalizes & + & tr* \\ \hline tr & xml:id,style,class,index,verbalizes & + & td* \\ \hline td & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline th & xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline link & xml:id,style,class,index,verbalizes & - & 《math vernacular》 \\ \hline note & type,xml:id,style,class,index,verbalizes & + & 《math vernacular》 \\ \hline \end{tabular}`	Element | Optional Attributes | DC | Content p | xml:id,style,class,index,verbalizes | + | 《math vernacular》 ol | xml:id,style,class,index,verbalizes | + | li* ul | xml:id,style,class,index,verbalizes | + | li* li | xml:id,style,class,index,verbalizes | + | 《math vernacular》 dl | xml:id,style,class,index,verbalizes | + | di* di | xml:id,style,class,index,verbalizes | + | dt*,dd* dt | xml:id,style,class,index,verbalizes | + | 《math vernacular》 dd | xml:id,style,class,index,verbalizes | + | 《math vernacular》 idx | (xml:id|xref) | - | idt?,ide+ ide | index,sort-by,see,seealso,links | - | idp* idt | style,class | - | 《math vernacular》 idp | sort-by,see,seealso,links | - | 《math vernacular》 table | xml:id,style,class,index,verbalizes | + | tr* tr | xml:id,style,class,index,verbalizes | + | td* td | xml:id,style,class,index,verbalizes | + | 《math vernacular》 th | xml:id,style,class,index,verbalizes | + | 《math vernacular》 link | xml:id,style,class,index,verbalizes | - | 《math vernacular》 note | type,xml:id,style,class,index,verbalizes | + | 《math vernacular》	Element | Optional Attributes | DC | Content p | xml:id, style, class, index, verbalizes | + | 《math vernacular》 ol | xml:id, style, class, index, verbalizes | + | li* ul | xml:id, style, class, index, verbalizes | + | li* li | xml:id, style, class, index, verbalizes | + | 《math vernacular》 dl | xml:id, style, class, index, verbalizes | + | di* di | xml:id, style, class, index, verbalizes | + | dt*,dd* dt | xml:id, style, class, index, verbalizes | + | 《math vernacular》 dd | xml:id, style, class, index, verbalizes | + | 《math vernacular》 idx | (xml:id|xref) | – | idt?, ide+ ide | index, sort-by, see, seealso, links | – | idp* idt | style, class | – | 《math vernacular》 idp | sort-by, see, seealso, links | – | 《math vernacular》 table | xml:id, style, class, index, verbalizes | + | tr* tr | xml:id, style, class, index, verbalizes | + | td* td | xml:id, style, class, index, verbalizes | + | 《math vernacular》 th | xml:id, style, class, index, verbalizes | + | 《math vernacular》 link | xml:id, style, class, index, verbalizes | – | 《math vernacular》 note | type, xml:id, style, class, index, verbalizes | + | 《math vernacular》

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Identifier	Page	Conf.	LaTeX source	Rendered	Image
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Identifier	Page	Conf.	LaTeX source	Rendered	Image
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Furthermore, let \(\mathcal{A}:= \{\mathcal{A}_{1}, \ldots, \mathcal{A}_{n}\}\) and \(\mathcal{C}:= \{\mathcal{C}_{1}, \ldots, \mathcal{C}_{m}\}\), and \(\mathcal{F}^{-1}\) be the sequent that has the \(\mathcal{C}_{i}\) as assumptions and the \(\mathcal{A}_{i}\) as conclusions. Finally, let \(\overline{\mathcal{C}}:= \{\overline{\mathcal{C}_{1}}, \ldots, \overline{\mathcal{C}_{m}}\}\), where \(\overline{\mathcal{C}_{i}}\) is a negation of \(\mathcal{C}_{i}\).} \\ \hline		status | just-by points to tautology | Proof of $\mathcal{F}$ *All $\mathcal{T}$-interpretations satisfy $\mathcal{A}$ and some $\mathcal{C}_i$* tautologous-conclusion | Proof of $\mathcal{F}_c$. *All $\mathcal{T}$-interpretations satisfy some $\mathcal{C}_j$* equivalent | Proofs of $\mathcal{F}$ and $\mathcal{F}^{-1}$ *$\mathcal{A}$ and $\mathcal{C}$ have the same $\mathcal{T}$-models (and there are some)* theorem | Proof of $\mathcal{F}$ *All $\mathcal{T}$-models of $\mathcal{A}$ (and there are some) satisfy some $\mathcal{C}_i$* satisfiable | Model of $\mathcal{A}$ and some $\mathcal{C}_i$ *Some $\mathcal{T}$-models of $\mathcal{A}$ (and there are some) satisfy some $\mathcal{C}_i$* contradictory-axioms | Refutation of $\mathcal{A}$ *There are no $\mathcal{T}$-models of $\mathcal{A}$* no-consequence | $\mathcal{T}$-model of $\mathcal{A}$ and some $\mathcal{C}_i$, $\mathcal{T}$-model of $\mathcal{A} \cup \overline{\mathcal{C}}$. *Some $\mathcal{T}$-models of $\mathcal{A}$ (and there are some) satisfy some $\mathcal{C}_i$, some satisfy $\overline{\mathcal{C}}$* counter-satisfiable | Model of $\mathcal{A} \cup \overline{\mathcal{C}}$ *Some $\mathcal{T}$-models of $\mathcal{A}$ (and there are some) satisfy $\overline{\mathcal{C}}$* counter-theorem | Proof of $\overline{\mathcal{C}}$ from $\mathcal{A}$ *All $\mathcal{T}$-models of $\mathcal{A}$ (and there are some) satisfy $\overline{\mathcal{C}}$* counter-equivalent | Proof of $\overline{\mathcal{C}}$ from $\mathcal{A}$ and proof of $\mathcal{A}$ from $\overline{\mathcal{C}}$ *$\mathcal{A}$ and $\overline{\mathcal{C}}$ have the same $\mathcal{T}$-models (and there are some)* unsatisfiable-conclusion | Proof of $\overline{\mathcal{C}}$ *All $\mathcal{T}$-interpretations satisfy $\overline{\mathcal{C}}$* unsatisfiable | Proof of $\neg\mathcal{F}$ *All $\mathcal{T}$-interpretations satisfy $\mathcal{A}$ and $\overline{\mathcal{C}}$* Where $\mathcal{F}$ is an assertion whose FMP has assumption elements $\mathcal{A}_1, \ldots, \mathcal{A}_n$ and conclusion elements $\mathcal{C}_1, \ldots, \mathcal{C}_m$. Furthermore, let $\mathcal{A}:= \{\mathcal{A}_1, \ldots, \mathcal{A}_n\}$ and $\mathcal{C}:= \{\mathcal{C}_1, \ldots, \mathcal{C}_m\}$, and $\mathcal{F}^{-1}$ be the sequent that has the $\mathcal{C}_i$ as assumptions and the $\mathcal{A}_i$ as conclusions. Finally, let $\overline{\mathcal{C}}:= \{\overline{\mathcal{C}_1}, \ldots, \overline{\mathcal{C}_m}\}$, where $\overline{\mathcal{C}_i}$ is a negation of $\mathcal{C}_i$.

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<tr><td>tgroup</td><td></td><td>xml:id, modules, type, class, style</td><td>+</td><td>(⟨⟨top+thc⟩⟩)*</td></tr>
<tr><td colspan="5">where ⟨⟨top+thc⟩⟩ stands for top-level and theory-constitutive elements</td></tr>
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<tr><th>Identifier</th><th>Page</th><th>Conf.</th><th>LaTeX source</th><th>Rendered</th><th>Image</th></tr>
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<tr><td>sortdef</td><td>name</td><td>type,role,scope,class, style</td><td>+</td><td>(constructor| insort)*,recognizer?</td></tr>
<tr><td>constructor</td><td>name</td><td>type,scope,class,style</td><td>+</td><td>argument*</td></tr>
<tr><td>argument</td><td></td><td></td><td>+</td><td>type,selector?</td></tr>
<tr><td>insort</td><td>for</td><td></td><td>-</td><td></td></tr>
<tr><td>selector</td><td>name</td><td>type,scope,role,total, class,style</td><td>+</td><td>EMPTY</td></tr>
<tr><td>recognizer</td><td>name</td><td>type,scope,role,class, style</td><td>+</td><td></td></tr>
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<tr><td>sortdef</td><td>name</td><td>type, role, scope, class, style</td><td>+</td><td>(constructor | insort)*, recognizer?</td></tr>
<tr><td>constructor</td><td>name</td><td>type, scope, class, style</td><td>+</td><td>argument*</td></tr>
<tr><td>argument</td><td></td><td></td><td>+</td><td>type, selector?</td></tr>
<tr><td>insort</td><td>for</td><td></td><td>−</td><td></td></tr>
<tr><td>selector</td><td>name</td><td>type, scope, role, total, class, style</td><td>+</td><td>EMPTY</td></tr>
<tr><td>recognizer</td><td>name</td><td>type, scope, role, class, style</td><td>+</td><td></td></tr>
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<tr><td>proofobject</td><td></td><td>xml:id, for, class, style, theory</td><td>+</td><td>CMP*, (OMOBJ |m:math |legacy)</td></tr>
<tr><td>hypothesis</td><td></td><td>xml:id, class, style, inductive</td><td>-</td><td>CMP*, FMP*</td></tr>
<tr><td>derive</td><td></td><td>xml:id, class, style, type</td><td>-</td><td>CMP*, FMP*, method?</td></tr>
<tr><td>method</td><td></td><td>xref</td><td>-</td><td>(OMOBJ |m:math |legacy | premise | proof | proofobject)*</td></tr>
<tr><td>premise</td><td>xref</td><td></td><td>-</td><td>EMPTY</td></tr>
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<table>
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<tr><td>proof</td><td>for</td><td>theory, xml:id, class, style</td><td>+</td><td>(omtext | derive | hypothesis | symbol | definition)*</td></tr>
<tr><td>proofobject</td><td></td><td>xml:id, for, class, style, theory</td><td>+</td><td>CMP*, (OMOBJ |m:math |legacy)</td></tr>
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<tr><td>derive</td><td></td><td>xml:id, class, style, type</td><td>−</td><td>CMP*, FMP*, method?</td></tr>
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Identifier	Page	Conf.	LaTeX source	Rendered	Image
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kohlhase-omdoc_TAB_034	189	0.515	\begin{tabular}[t]{|l|l|l|l|l|} \hline Element & \multicolumn{2}{|l|}{Attributes} & D & Content \\ \hline & Required & Optional & C & \\ \hline decomposition & links & & - & EMPTY \\ \hline path-just & local, globals & for & - & EMPTY \\ \hline theory-inclusion & from, to, by & xml:id, class, style & + & (CMP*,FMP*, morphism, (decomposition* | obligation*)) \\ \hline axiom-inclusion & from, to & xml:id, class, style & + & morphism?, (path-just* | obligation*) \\ \hline \end{tabular}	<table><tr><th rowspan="2">Element</th><th colspan="2">Attributes</th><th rowspan="2">D</th><th rowspan="2">Content</th></tr><tr><th>Required</th><th>Optional</th></tr><tr><td></td><td></td><td></td><td>C</td><td></td></tr><tr><td>decomposition</td><td>links</td><td></td><td>-</td><td>EMPTY</td></tr><tr><td>path-just</td><td>local, globals</td><td>for</td><td>-</td><td>EMPTY</td></tr><tr><td>theory-inclusion</td><td>from, to, by</td><td>xml:id, class, style</td><td>+</td><td>(CMP*,FMP*, morphism, (decomposition* | obligation*))</td></tr><tr><td>axiom-inclusion</td><td>from, to</td><td>xml:id, class, style</td><td>+</td><td>morphism?, (path-just* | obligation*)</td></tr></table>	<table><tr><th rowspan="2">Element</th><th colspan="2">Attributes</th><th rowspan="2">D</th><th rowspan="2">Content</th></tr><tr><th>Required</th><th>Optional</th></tr><tr><td></td><td></td><td></td><td>C</td><td></td></tr><tr><td>decomposition</td><td>links</td><td></td><td>−</td><td>EMPTY</td></tr><tr><td>path-just</td><td>local, globals</td><td>for</td><td>−</td><td>EMPTY</td></tr><tr><td>theory-inclusion</td><td>from, to, by</td><td>xml:id, class, style</td><td>+</td><td>(CMP*,FMP*, morphism, (decomposition* | obligation*))</td></tr><tr><td>axiom-inclusion</td><td>from, to</td><td>xml:id, class, style</td><td>+</td><td>morphism?, (path-just* | obligation*)</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_035	192	1.000	`\begin{tabular}[t]{|l|l|l|l|} \hline Element & \multicolumn{2}{|l|}{Attributes} & Content \\ \hline & Required & Optional & \\ \hline omstyle & element & for, xml:id, xref, class, style & (style|xslt)* \\ \hline presentation & for & xml:id, xref, fixity, role, lbrack, rbrack, separator, bracket-style, class, style, precedence, crossref-symbol & (use | xslt | style)* \\ \hline xslt & format & xml:lang, requires, xref & XSLT fragment \\ \hline use & format & xml:lang, requires, fixity, lbrack, rbrack, separator, element, attributes, crossref-symbol & (element | text | recurse | map | value-of)* \\ \hline \end{tabular}`	<table><tr><th rowspan="2">Element</th><th colspan="2">Attributes</th><th rowspan="2">Content</th></tr><tr><th>Required</th><th>Optional</th></tr><tr><td>omstyle</td><td>element</td><td>for, xml:id, xref, class, style</td><td>(style|xslt)*</td></tr><tr><td>presentation</td><td>for</td><td>xml:id, xref, fixity, role, lbrack, rbrack, separator, bracket-style, class, style, precedence, crossref-symbol</td><td>(use | xslt | style)*</td></tr><tr><td>xslt</td><td>format</td><td>xml:lang, requires, xref</td><td>XSLT fragment</td></tr><tr><td>use</td><td>format</td><td>xml:lang, requires, fixity, lbrack, rbrack, separator, element, attributes, crossref-symbol</td><td>(element | text | recurse | map | value-of)*</td></tr></table>	<table><tr><th rowspan="2">Element</th><th colspan="2">Attributes</th><th rowspan="2">Content</th></tr><tr><th>Required</th><th>Optional</th></tr><tr><td>omstyle</td><td>element</td><td>for, xml:id, xref, class, style</td><td>(style|xslt)*</td></tr><tr><td>presentation</td><td>for</td><td>xml:id, xref, fixity, role, lbrack, rbrack, separator, bracket-style, class, style, precedence, crossref-symbol</td><td>(use | xslt | style)*</td></tr><tr><td>xslt</td><td>format</td><td>xml:lang, requires, xref</td><td>XSLT fragment</td></tr><tr><td>use</td><td>format</td><td>xml:lang, requires, fixity, lbrack, rbrack, separator, element, attributes, crossref-symbol</td><td>(element | text | recurse | map | value-of)*</td></tr></table>
kohlhase-omdoc_TAB_036	195	1.000	`\begin{tabular}[t]{|l|l|l|l|} \hline Element & Attributes & & Content \\ \hline & Required & Optional & \\ \hline style & format & xml:lang, requires, xref & (element | text | recurse | map | value-of)* \\ \hline element & name & crid, cr, ns & (attribute | element | text | value-of | recurse | map)* \\ \hline attribute & name & & (value-of | text)* \\ \hline text & & & (\#PCDATA) \\ \hline value-of & select & & EMPTY \\ \hline recurse & & select & EMPTY \\ \hline map & & select & separator?, (element | text | recurse | map) \\ \hline separator & & & (element | text | recurse | map) \\ \hline \end{tabular}`	<table><tr><th>Element</th><th>Attributes</th><th></th><th>Content</th></tr><tr><td></td><td>Required</td><td>Optional</td><td></td></tr><tr><td>style</td><td>format</td><td>xml:lang, requires, xref</td><td>(element | text | recurse | map | value-of)*</td></tr><tr><td>element</td><td>name</td><td>crid, cr, ns</td><td>(attribute | element | text | value-of | recurse | map)*</td></tr><tr><td>attribute</td><td>name</td><td></td><td>(value-of | text)*</td></tr><tr><td>text</td><td></td><td></td><td>(#PCDATA)</td></tr><tr><td>value-of</td><td>select</td><td></td><td>EMPTY</td></tr><tr><td>recurse</td><td></td><td>select</td><td>EMPTY</td></tr><tr><td>map</td><td></td><td>select</td><td>separator?, (element | text | recurse | map)</td></tr><tr><td>separator</td><td></td><td></td><td>(element | text | recurse | map)</td></tr></table>	<table><tr><th>Element</th><th>Attributes</th><th></th><th>Content</th></tr><tr><td></td><td>Required</td><td>Optional</td><td></td></tr><tr><td>style</td><td>format</td><td>xml:lang, requires, xref</td><td>(element | text | recurse | map | value-of)*</td></tr><tr><td>element</td><td>name</td><td>crid, cr, ns</td><td>(attribute | element | text | value-of | recurse | map)*</td></tr><tr><td>attribute</td><td>name</td><td></td><td>(value-of | text)*</td></tr><tr><td>text</td><td></td><td></td><td>(#PCDATA)</td></tr><tr><td>value-of</td><td>select</td><td></td><td>EMPTY</td></tr><tr><td>recurse</td><td></td><td>select</td><td>EMPTY</td></tr><tr><td>map</td><td></td><td>select</td><td>separator?, (element | text | recurse | map)</td></tr><tr><td>separator</td><td></td><td></td><td>(element | text | recurse | map)</td></tr></table>
kohlhase-omdoc_TAB_037	201	0.952	`\begin{tabular}[t]{|l|l|l|} \hline Precedence & Operators & Comment \\ \hline 200 & +,- & unary \\ \hline 200 & - & exponentiation \\ \hline 400 & \(*, \wedge, \cap\) & multiplicative \\ \hline 500 & +, -, V, U & additive \\ \hline 600 & / & fraction \\ \hline 700 & \(=, \neq, \leq,<,>, \geq\) & relation \\ \hline \end{tabular}`	<table><tr><th>Precedence</th><th>Operators</th><th>Comment</th></tr><tr><td>200</td><td>+,-</td><td>unary</td></tr><tr><td>200</td><td>-</td><td>exponentiation</td></tr><tr><td>400</td><td>$*, \wedge, \cap$</td><td>multiplicative</td></tr><tr><td>500</td><td>+, -, V, U</td><td>additive</td></tr><tr><td>600</td><td>/</td><td>fraction</td></tr><tr><td>700</td><td>$=, \neq, \leq, <, >, \geq$</td><td>relation</td></tr></table>	<table><tr><th>Precedence</th><th>Operators</th><th>Comment</th></tr><tr><td>200</td><td>+,-</td><td>unary</td></tr><tr><td>200</td><td>$\hat{}$</td><td>exponentiation</td></tr><tr><td>400</td><td>$*, \wedge, \cap$</td><td>multiplicative</td></tr><tr><td>500</td><td>$+, -, \vee, \cup$</td><td>additive</td></tr><tr><td>600</td><td>/</td><td>fraction</td></tr><tr><td>700</td><td>$=, \neq, \leq, <, >, \geq$</td><td>relation</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_038	201	■ 0.307	\begin{tabular}[t]{|l|l|l|l|} \hline fixity & bracket-style & separator & yields \\ \hline prefix & lisp & " " & (f123) \\ \hline postfix & lisp & " " & (123f) \\ \hline prefix & math & "," & f(1, 2, 3) \\ \hline postfix & math & "," & (1,2,3)f \\ \hline \multicolumn{4}{|c|}{assuming lbrack="(" and rbrack=")"} \\ \hline \end{tabular}	fixity | bracket-style | separator | yields prefix | lisp | " " | (f123) postfix | lisp | " " | (123f) prefix | math | "," | f(1, 2, 3) postfix | math | "," | (1,2,3)f assuming lbrack="(" and rbrack=")"	fixity | bracket-style | separator | yields prefix | lisp | " " | $(f\ 1\ 2\ 3)$ postfix | lisp | " " | $(1\ 2\ 3\ f)$ prefix | math | "," | $f(1,2,3)$ postfix | math | "," | $(1,2,3)f$ assuming lbrack="(" and rbrack=")"
kohlhase-omdoc_TAB_039 **[conf 0.000]**	202	■ 0.000	\begin{tabular}[t]{|l|l|} \hline Notation specification & Example \\ \hline \begin{lstlisting}[mathescape=true] <presentation for=" #forall" role="binding" separator = ". " \(>\) <use format="TeX"> forall</use> <use format="html">∀</use> </presentation> \end{lstlisting} & \begin{lstlisting}[mathescape=true] <OMBIND> <OMS cd="quant1" name="forall"/> <OMBVAR> <OMV name="X"/> </OMBVAR> <OMS cd="logic1" name="true"/> </OMBIND> \end{lstlisting} \\ \hline \multicolumn{2}{|l|}{\begin{tabular}[t]{l} Using XSLT templates induced from the presentation element on the OpenMath expression yields \(\forall X\).true, where the glyph \(\forall\) carries a hyperlink \({ }^{\varnothing}\) to it definition, as the crossref-symbol on the presentation element has the default value yes. Internally, the hyperlinks are format-dependent, we have: \\ LATEX: \begin{lstlisting} \href{../ocd/logic1.ps#true}{ \forall}X. \href{../ocd/logic1.ps#true}{{\sf true}} HTML: <a href="../ocd/logic1.html#forall">∀</a> X. <a href="../ocd/logic1.html#true">true</a> \end{lstlisting} \end{tabular}} \\ \hline \end{tabular}	*(not rendered)*	Notation specification | Example <presentation for="#forall" role="binding" separator="."> <use format="TeX">\forall</use> <use format="html">∀</use> </presentation> | <OMBIND> <OMS cd="quant1" name="forall"/> <OMBVAR> <OMV name="X"/> </OMBVAR> <OMS cd="logic1" name="true"/> </OMBIND> Using XSLT templates induced from the presentation element on the OpenMath expression yields $\forall X$.true, where the glyph $\forall$ carries a hyperlink[6] to it definition, as the crossref-symbol on the presentation element has the default value yes. Internally, the hyperlinks are format-dependent, we have: LaTeX: \href{../ocd/logic1.ps#true}{\forall}X. \href{../ocd/logic1.ps#true}{{\sf true}} HTML: <a href="../ocd/logic1.html#forall">∀</a> X. <a href="../ocd/logic1.html#true">true</a>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
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kohlhase-omdoc_TAB_041	210	0.931	\begin{tabular}[t]{|l|l|l|l|l|} \hline Element & \multicolumn{2}{|l|}{Attributes} & D & Content \\ \hline & Req. & Optional & C & \\ \hline omlet & data, & xml:id, action, show, actuate, class, style & + & (《CMP content》 | param)*,data* \\ \hline param & name & value, valuetype & - & EMPTY \\ \hline \end{tabular}		
kohlhase-omdoc_TAB_042	214	0.919	\begin{tabular}[t]{|l|l|l|l|l|} \hline Element & \multicolumn{2}{|l|}{Attributes} & D & Content \\ \hline & Req. & Optional & C & \\ \hline exercise & & xml:id, class, style & + & CMP*,FMP*,hint?,(solution*|mc*) \\ \hline hint & & xml:id, class, style & + & CMP*, FMP* \\ \hline solution & & xml:id, for, class, style & + & 《top-level element》 \\ \hline mc & & xml:id, for, class, style & - & choice, hint?, answer \\ \hline choice & & xml:id, class, style & + & CMP*, FMP* \\ \hline answer & verdict & xml:id, class, style & + & CMP*, FMP* \\ \hline \end{tabular}		

Element	Attributes		D	Content
	Req.	Optional	C	
private		xml:id, for, theory, requires, type, reformulates, class, style	+	CMP*, data+
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input		xml:id, style, class	+	CMP*, FMP*
output		xml:id, style, class	+	CMP*, FMP*
effect		xml:id, style, class	+	CMP*, FMP*
data		format, href, size, original, pto, pto-version	-	<![CDATA[...]]>

Element	Attributes		D	Content
	Req.	Optional	C	
omlet	data,	xml:id, action, show, actuate, class, style	+	(《CMP *content*》 | param)*,data*
param	name	value, valuetype	-	EMPTY

Element	Attributes		D	Content
	Req.	Optional	C	
exercise		xml:id, class, style	+	CMP*,FMP*,hint?,(solution*|mc*)
hint		xml:id, class, style	+	CMP*, FMP*
solution		xml:id, for, class, style	+	《*top-level element*》
mc		xml:id, for, class, style	−	choice, hint?, answer
choice		xml:id, class, style	+	CMP*, FMP*
answer	verdict	xml:id, class, style	+	CMP*, FMP*

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_043	220	0.940	\begin{tabular}[t]{|l|l|l|l|} \hline \# & Rule & comment & elements \\ \hline 1 & unordere d & The order of children of this element is irrelevant (as far as permitted by the content model). For instance only the order of obligation elements in the axiom-inclusion element is arbitrary, since the others must precede them in the content model. & adt axiom-inclusion metadata symbol code private presentation omstyle \\ \hline 2 & multigroup & The order between siblings elements does not matter, as long as the values of the key attributes differ. & CMP FMP requation dc:description sortdef data dc:title solution \\ \hline 3 & DAG encoding & Directed acyclic graphs built up using om:OMR elements are equal, iff their tree expansions are equal. & om:OMR ref \\ \hline 4 & Dataset & If the content of the dc:type element is Dataset, then the order of the siblings of the parent metadata element is irrelevant. & dc:type \\ \hline \end{tabular}	<table><tr><th>#</th><th>Rule</th><th>comment</th><th>elements</th></tr><tr><td>1</td><td>unordere d</td><td>The order of children of this element is irrelevant (as far as permitted by the content model). For instance only the order of obligation elements in the axiom-inclusion element is arbitrary, since the others must precede them in the content model.</td><td>adt axiom-inclusion metadata symbol code private presentation omstyle</td></tr><tr><td>2</td><td>multigroup</td><td>The order between siblings elements does not matter, as long as the values of the key attributes differ.</td><td>CMP FMP requation dc:description sortdef data dc:title solution</td></tr><tr><td>3</td><td>DAG encoding</td><td>Directed acyclic graphs built up using om:OMR elements are equal, iff their tree expansions are equal.</td><td>om:OMR ref</td></tr><tr><td>4</td><td>Dataset</td><td>If the content of the dc:type element is Dataset, then the order of the siblings of the parent metadata element is irrelevant.</td><td>dc:type</td></tr></table>
kohlhase-omdoc_TAB_044	227	0.992	\begin{tabular}[t]{|l|l|} \hline directories & content \\ \hline bin, lib, oz, thirdParty & programs and third-party software used in the administration and examples \\ \hline css, xsl & style sheets for displaying OMDoc documents on the web, see Chapter 25 for a discussion. \\ \hline doc & The OMDoc documentation, including the specification, papers about a the OMDoc format and tools. \\ \hline dtd, rnc & The OMDoc document type definition and the RelaxNG schemata for OMDoc \\ \hline examples & Various example documents in OMDoc format. \\ \hline projects & various contributed developments for OMDoc. Documentation is usually in their doc sub-directory \\ \hline \end{tabular}	<table><tr><th>directories</th><th>content</th></tr><tr><td>bin, lib, oz, thirdParty</td><td>programs and third-party software used in the administration and examples</td></tr><tr><td>css, xsl</td><td>style sheets for displaying OMDoc documents on the web, see Chapter 25 for a discussion.</td></tr><tr><td>doc</td><td>The OMDoc documentation, including the specification, papers about a the OMDoc format and tools.</td></tr><tr><td>dtd, rnc</td><td>The OMDoc document type definition and the RelaxNG schemata for OMDoc</td></tr><tr><td>examples</td><td>Various example documents in OMDoc format.</td></tr><tr><td>projects</td><td>various contributed developments for OMDoc. Documentation is usually in their doc sub-directory</td></tr></table>	<table><tr><th>directories</th><th>content</th></tr><tr><td>bin, lib, oz, thirdParty</td><td>programs and third-party software used in the administration and examples</td></tr><tr><td>css, xsl</td><td>style sheets for displaying OMDoc documents on the web, see Chapter 25 for a discussion.</td></tr><tr><td>doc</td><td>The OMDoc documentation, including the specification, papers about a the OMDoc format and tools.</td></tr><tr><td>dtd, rnc</td><td>The OMDoc document type definition and the RelaxNG schemata for OMDoc</td></tr><tr><td>examples</td><td>Various example documents in OMDoc format.</td></tr><tr><td>projects</td><td>various contributed developments for OMDoc. Documentation is usually in their doc sub-directory</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_045	233	0.940	`\begin{tabular}[t]{|l|l|l|} \hline language & namespace & prefix \\ \hline MathML & http://www.w3.org/1998/Math/MathML & m: \\ \hline OpenMath & http://www.openmath.org/OpenMath & om: \\ \hline XSLT & http://www.w3.org/1999/XSL/Transform & xsl: \\ \hline Dublin Core & http://purl.org/dc/elements/1.1/ & dc: \\ \hline Creative Commons & http://creativecommons.org/ns & cc: \\ \hline OMDoc & http://www.mathweb.org/omdoc & omdoc: \\ \hline \end{tabular}`	language | namespace | prefix MathML | http://www.w3.org/1998/Math/MathML | m: OpenMath | http://www.openmath.org/OpenMath | om: XSLT | http://www.w3.org/1999/XSL/Transform | xsl: Dublin Core | http://purl.org/dc/elements/1.1/ | dc: Creative Commons | http://creativecommons.org/ns | cc: OMDoc | http://www.mathweb.org/omdoc | omdoc:	language | namespace | prefix MathML | http://www.w3.org/1998/Math/MathML | m: OpenMath | http://www.openmath.org/OpenMath | om: XSLT | http://www.w3.org/1999/XSL/Transform | xsl: Dublin Core | http://purl.org/dc/elements/1.1/ | dc: Creative Commons | http://creativecommons.org/ns | cc: OMDoc | http://www.mathweb.org/omdoc | omdoc:
kohlhase-omdoc_TAB_046	245	0.999	`\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.matracas.org/qmath/index.en.html \\ \hline Authors & Alberto González Palomo Toledo, Spain \({ }^{2}\) \\ \hline \end{tabular}`	Project Home | http://www.matracas.org/qmath/index.en.html Authors | Alberto González Palomo Toledo, Spain [2]	Project Home | http://www.matracas.org/qmath/index.en.html Authors | Alberto González Palomo Toledo, Spain[2]
kohlhase-omdoc_TAB_047	248	1.000	`\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.matracas.org/sentido/index.en.html \\ \hline Authors & Alberto González Palomo Toledo, Spain \({ }^{4}\) \\ \hline \end{tabular}`	Project Home | http://www.matracas.org/sentido/index.en.html Authors | Alberto González Palomo Toledo, Spain [4]	Project Home | http://www.matracas.org/sentido/index.en.html Authors | Alberto González Palomo Toledo, Spain[4]
kohlhase-omdoc_TAB_048	253	1.000	`\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.mathweb.org/mbase \\ \hline Authors & Andreas Franke \({ }^{1}\), Michael Kohlhase \({ }^{2}\) \begin{itemize} \item[] \({ }^{1}\) Computer Science, Saarland University \item[] \({ }^{2}\) School of Engineering and Science, International \end{itemize} University Bremen \\ \hline \end{tabular}`	*(not rendered)*	Project Home | http://www.mathweb.org/mbase Authors | Andreas Franke[1], Michael Kohlhase[2] [1] Computer Science, Saarland University [2] School of Engineering and Science, International University Bremen
kohlhase-omdoc_TAB_049	255	1.000	`\begin{tabular}[t]{|l|l|} \hline Project Home & http://search.mathweb.org/ \\ \hline Authors & Ioan Sucan, Michael Kohlhase Computer Science, International University Bremen \\ \hline \end{tabular}`	Project Home | http://search.mathweb.org/ Authors | Ioan Sucan, Michael Kohlhase Computer Science, International University Bremen	Project Home | http://search.mathweb.org/ Authors | Ioan Sucan, Michael Kohlhase Computer Science, International University Bremen
kohlhase-omdoc_TAB_050	259	1.000	`\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.mmiss.de \\ \hline Authors & Bernd Krieg-Brückner, Achim Mahnke Computer Science, University of Bremen, Germany \\ \hline \end{tabular}`	Project Home | http://www.mmiss.de Authors | Bernd Krieg-Brückner, Achim Mahnke Computer Science, University of Bremen, Germany	Project Home | http://www.mmiss.de Authors | Bernd Krieg-Brückner, Achim Mahnke Computer Science, University of Bremen, Germany

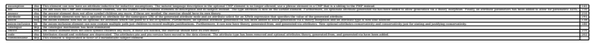
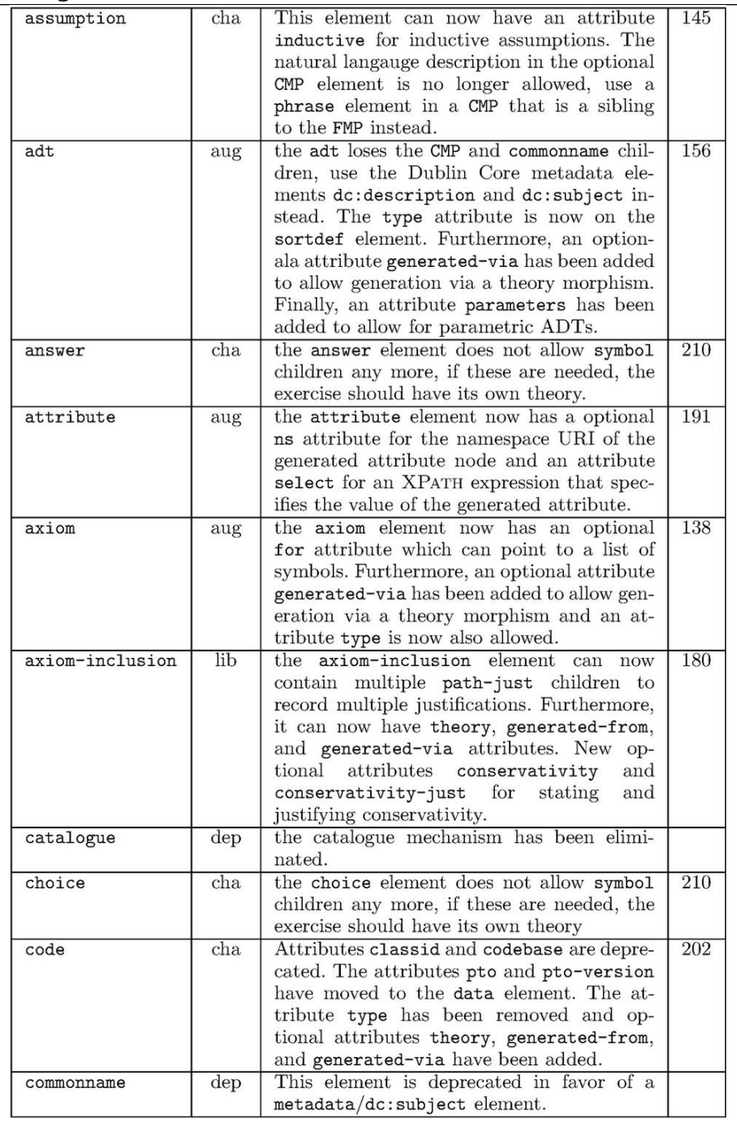
Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_051	263	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.mathdox.org \\ \hline Authors & A.M. Cohen, H. Cuypers, E. Reinaldo Barreiro Department of Mathematics and Computer Science, Eindhoven University of Technology \\ \hline \end{tabular}	Project Home | http://www.mathdox.org Authors | A.M. Cohen, H. Cuypers, E. Reinaldo Barreiro Department of Mathematics and Computer Science, Eindhoven University of Technology	Project Home | http://www.mathdox.org Authors | A.M. Cohen, H. Cuypers, E. Reinaldo Barreiro Department of Mathematics and Computer Science, Eindhoven University of Technology
kohlhase-omdoc_TAB_052	267	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.activemath.org/ \\ \hline Authors & The ActiveMath group: Erica Melis, Giorgi Goguadse, Alberto Gonzales-Palomo, Adrian Frischauf, Martin Homik, Paul Libbrecht, Carsten Ullrich DFKI GmbH and Universität des Saarlandes \\ \hline \end{tabular}	Project Home | http://www.activemath.org/ Authors | The ActiveMath group: Erica Melis, Giorgi Goguadse, Alberto Gonzales-Palomo, Adrian Frischauf, Martin Homik, Paul Libbrecht, Carsten Ullrich DFKI GmbH and Universität des Saarlandes	Project Home | http://www.activemath.org/ Authors | The ActiveMath group: Erica Melis, Giorgi Goguadse, Alberto Gonzales-Palomo, Adrian Frischauf, Martin Homik, Paul Libbrecht, Carsten Ullrich DFKI GmbH and Universität des Saarlandes
kohlhase-omdoc_TAB_053	273	0.999	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.activemath.org/projects/jEdit0QMath \\ \hline Authors & Paul Libbrecht DFKI GmbH and Universität des Saarlandes \\ \hline \end{tabular}	Project Home | http://www.activemath.org/projects/jEdit0QMath Authors | Paul Libbrecht DFKI GmbH and Universität des Saarlandes	Project Home | http://www.activemath.org/projects/jEdit0QMath Authors | Paul Libbrecht DFKI GmbH and Universität des Saarlandes
kohlhase-omdoc_TAB_054	275	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://kwarc.eecs.iu-bremen.de/projects/swim \\ \hline Authors & Christoph Lange, Michael Kohlhase Computer Science, International University Bremen \\ \hline \end{tabular}	Project Home | http://kwarc.eecs.iu-bremen.de/projects/swim Authors | Christoph Lange, Michael Kohlhase Computer Science, International University Bremen	Project Home | http://kwarc.eecs.iu-bremen.de/projects/swim Authors | Christoph Lange, Michael Kohlhase Computer Science, International University Bremen
kohlhase-omdoc_TAB_055	279	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.cs.nott.ac.uk/ \({ }^{\sim}\) lad/research/challenges/challenge_manager.html \\ \hline Authors & Thomas D. Attfield, Monica C. Duarte, Lin Li, HoYing Mak, Adam M. Neal, Lewis M. Toft, Zixuan Wang, Louise A. Dennis School of Computer Science and Information Technology, University of Nottingham \\ \hline \end{tabular}	*(not rendered)*	Project Home | http://www.cs.nott.ac.uk/~lad/research/challenges/challenge_manager.html Authors | Thomas D. Attfield, Monica C. Duarte, Lin Li, Ho-Ying Mak, Adam M. Neal, Lewis M. Toft, Zixuan Wang, Louise A. Dennis School of Computer Science and Information Technology, University of Nottingham
kohlhase-omdoc_TAB_056	282	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & www.dfki.de/ \({ }^{\sim}\) inka/maya.html \\ \hline Authors & Serge Autexier \({ }^{1}\), Dieter Hutter \({ }^{1}\), Till Mossakowski \({ }^{2}\), Axel Schairer \({ }^{1} { }^{1}\) DKFI GmbH, Stuhlsatzenhausweg 3, D 66123 Saarbrücken \({ }^{2}\) Computer Science, University of Bremen, Germany \\ \hline \end{tabular}	Project Home | www.dfki.de/ ~ inka/maya.html Authors | Serge Autexier [1], Dieter Hutter [1], Till Mossakowski [2], Axel Schairer [1] DKFI GmbH, Stuhlsatzenhausweg 3, D 66123 Saarbrücken [2] Computer Science, University of Bremen, Germany	Project Home | www.dfki.de/~inka/maya.html Authors | Serge Autexier[1], Dieter Hutter[1], Till Mossakowski[2], Axel Schairer[1] [1] DKFI GmbH, Stuhlsatzenhausweg 3, D 66123 Saarbrücken [2] Computer Science, University of Bremen, Germany

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_057	287	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & www.tzi.de/cofi/hets \\ \hline Authors & Till Mossakowski, Christian Maeder, Klaus Lüttich Computer Science, University of Bremen, Germany \\ \hline \end{tabular}	Project Home: www.tzi.de/cofi/hets Authors: Till Mossakowski, Christian Maeder, Klaus Lüttich Computer Science, University of Bremen, Germany	Project Home: www.tzi.de/cofi/hets Authors: Till Mossakowski, Christian Maeder, Klaus Lüttich Computer Science, University of Bremen, Germany
kohlhase-omdoc_TAB_058	291	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://kwarc.eecs.iu-bremen.de/software/CPoint/ \\ \hline Authors & \begin{tabular}[t]{l} Andrea Kohlhase \\ Digital Media in Education (DiMeB), Dept. of Mathematics and Computer Science, University Bremen \end{tabular} \\ \hline \end{tabular}	Project Home: http://kwarc.eecs.iu-bremen.de/software/CPoint/ Authors: Andrea Kohlhase Digital Media in Education (DiMeB), Dept. of Mathematics and Computer Science, University Bremen	Project Home: http://kwarc.eecs.iu-bremen.de/software/CPoint/ Authors: Andrea Kohlhase Digital Media in Education (DiMeB), Dept. of Mathematics and Computer Science, University Bremen
kohlhase-omdoc_TAB_059	295	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://kwarc.iu-bremen.de/projects/stex/ \\ \hline Authors & Michael Kohlhase Computer Science, International University Bremen \\ \hline \end{tabular}	Project Home: http://kwarc.iu-bremen.de/projects/stex/ Authors: Michael Kohlhase Computer Science, International University Bremen	Project Home: http://kwarc.iu-bremen.de/projects/stex/ Authors: Michael Kohlhase Computer Science, International University Bremen
kohlhase-omdoc_TAB_060	299	0.997	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.cs.cmu.edu/ \({ }^{\sim}\) ccaps \\ \hline Authors & Peter Jansen School of Computer Science, Carnegie Mellon University \\ \hline \end{tabular}	Project Home: http://www.cs.cmu.edu/ ~ ccaps Authors: Peter Jansen School of Computer Science, Carnegie Mellon University	Project Home: http://www.cs.cmu.edu/~ccaps Authors: Peter Jansen School of Computer Science, Carnegie Mellon University
kohlhase-omdoc_TAB_061	302	0.999	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.cs.cmu.edu/ \({ }^{\sim}\) ccaps \\ \hline Authors & Klaus Sutner School of Computer Science, Carnegie Mellon University \\ \hline \end{tabular}	Project Home: http://www.cs.cmu.edu/ ~ ccaps Authors: Klaus Sutner School of Computer Science, Carnegie Mellon University	Project Home: http://www.cs.cmu.edu/~ccaps Authors: Klaus Sutner School of Computer Science, Carnegie Mellon University
kohlhase-omdoc_TAB_062	305	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.mathweb.org/omdoc/examples/logics \\ \hline Authors & Michael Kohlhase Computer Science, International University Bremen \\ \hline \end{tabular}	Project Home: http://www.mathweb.org/omdoc/examples/logics Authors: Michael Kohlhase Computer Science, International University Bremen	Project Home: http://www.mathweb.org/omdoc/examples/logics Authors: Michael Kohlhase Computer Science, International University Bremen

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_063	306	0.994	\begin{tabular}[t]{|l|l|l|l|} \hline PVS & \(\Omega \) MEGA & PVS & \(\Omega_{\text {MEGA }}\) \\ \hline set & & subset? & subset \\ \hline member & in & & subset2 \\ \hline empty? & empty & strict_subset? & proper-subset \\ \hline emptyset & emptyset & & superset \\ \hline nonempty? & not-empty & union & union \\ \hline full? & & & union2 \\ \hline fullset & & & union-over-collection \\ \hline singleton? & singleton & intersection & intersection \\ \hline singleton & & & intersection-over-coll. \\ \hline complement & set-complement & disjoint? & misses \\ \hline difference & setminus & meets & \\ \hline symmetric_difference & & add & add-one \\ \hline & exclunion & remove & \\ \hline \end{tabular}	*(not rendered)*	<table><tr><th>PVS</th><th>ΩMEGA</th><th>PVS</th><th>ΩMEGA</th></tr><tr><td>set</td><td></td><td>subset?</td><td>subset</td></tr><tr><td>member</td><td>in</td><td></td><td>subset2</td></tr><tr><td>empty?</td><td>empty</td><td>strict_subset?</td><td>proper-subset</td></tr><tr><td>emptyset</td><td>emptyset</td><td></td><td>superset</td></tr><tr><td>nonempty?</td><td>not-empty</td><td>union</td><td>union</td></tr><tr><td>full?</td><td></td><td></td><td>union2</td></tr><tr><td>fullset</td><td></td><td></td><td>union-over-collection</td></tr><tr><td>singleton?</td><td>singleton</td><td>intersection</td><td>intersection</td></tr><tr><td>singleton</td><td></td><td></td><td>intersection-over-coll.</td></tr><tr><td>complement</td><td>set-complement</td><td>disjoint?</td><td>misses</td></tr><tr><td>difference</td><td>setminus</td><td>meets</td><td></td></tr><tr><td>symmetric_difference</td><td></td><td>add</td><td>add-one</td></tr><tr><td></td><td>exclunion</td><td>remove</td><td></td></tr></table>
kohlhase-omdoc_TAB_064	310	0.990	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.ags.uni-sb.de/~omega/projects/ verimathdoc \\ \hline Authors & Serge Autexier, Christoph Benzmüller, Armin Fiedler, and Henri Lesourd Computer Science, Saarland University, Saarbrücken, Germany \\ \hline \end{tabular}	Project Home | http://www.ags.uni-sb.de/ omega/projects/ verimathdoc Authors | Serge Autexier, Christoph Benzmüller, Armin Fiedler, and Henri Lesourd Computer Science, Saarland University, Saarbrücken, Germany	<table><tr><td>Project Home</td><td>http://www.ags.uni-sb.de/~omega/projects/ verimathdoc</td></tr><tr><td>Authors</td><td>Serge Autexier, Christoph Benzmüller, Armin Fiedler, and Henri Lesourd Computer Science, Saarland University, Saarbrücken, Germany</td></tr></table>
kohlhase-omdoc_TAB_065	314	1.000	\begin{tabular}[t]{|l|l|} \hline Project Home & http://www.verifun.de/ \\ \hline Authors & Normen Müller School of Engineering and Science, International University Bremen \\ \hline \end{tabular}	Project Home | http://www.verifun.de/ Authors | Normen Müller School of Engineering and Science, International University Bremen	<table><tr><td>Project Home</td><td>http://www.verifun.de/</td></tr><tr><td>Authors</td><td>Normen Müller School of Engineering and Science, International University Bremen</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_066	320	1.000	\begin{tabular}[t]{|l|l|l|l|} \hline element & state & comments & cf. \\ \hline alternative & aug & This element can now have theory, generated-from, and generated-via attributes. & 145 \\ \hline argument & cha & The sort has been replaced by a type child, so that higher-order sorts can be specified. & 156 \\ \hline assertion & aug & the assertion element now has an optional for attribute. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism. Finally, two new attributes status and just-by have been added to mark up the deductive status of the assertion. & 142 \\ \hline \end{tabular}		

element	state	comments	cf.
alternative	aug	This element can now have theory, generated-from, and generated-via attributes.	145
argument	cha	The sort has been replaced by a type child, so that higher-order sorts can be specified.	156
assertion	aug	the assertion element now has an optional for attribute. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism. Finally, two new attributes status and just-by have been added to mark up the deductive status of the assertion.	142

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_067	321	0.977	\begin{tabular}[t]{|l|l|l|l|} \hline assumption & cha & This element can now have an attribute inductive for inductive assumptions. The natural langauge description in the optional CMP element is no longer allowed, use a phrase element in a CMP that is a sibling to the FMP instead. & 145 \\ \hline adt & aug & the adt loses the CMP and commonname children, use the Dublin Core metadata elements dc:description and dc:subject instead. The type attribute is now on the sortdef element. Furthermore, an optionala attribute generated-via has been added to allow generation via a theory morphism. Finally, an attribute parameters has been added to allow for parametric ADTs. & 156 \\ \hline answer & cha & the answer element does not allow symbol children any more, if these are needed, the exercise should have its own theory. & 210 \\ \hline attribute & aug & the attribute element now has a optional ns attribute for the namespace URI of the generated attribute node and an attribute select for an XPath expression that specifies the value of the generated attribute. & 191 \\ \hline axiom & aug & the axiom element now has an optional for attribute which can point to a list of symbols. Furthermore, an optional attribute generated-via has been added to allow		

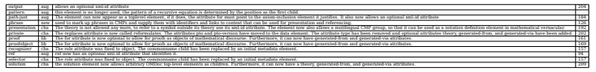
assumption	cha	This element can now have an attribute inductive for inductive assumptions. The natural langauge description in the optional CMP element is no longer allowed, use a phrase element in a CMP that is a sibling to the FMP instead.	145
adt	aug	the adt loses the CMP and commonname children, use the Dublin Core metadata elements dc:description and dc:subject instead. The type attribute is now on the sortdef element. Furthermore, an optionala attribute generated-via has been added to allow generation via a theory morphism. Finally, an attribute parameters has been added to allow for parametric ADTs.	156
answer	cha	the answer element does not allow symbol children any more, if these are needed, the exercise should have its own theory.	210
attribute	aug	the attribute element now has a optional ns attribute for the namespace URI of the generated attribute node and an attribute select for an XPath expression that specifies the value of the generated attribute.	191
axiom	aug	the axiom element now has an optional for attribute which can point to a list of symbols. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism and an attribute type is now also allowed.	138
axiom-inclusion	lib	the axiom-inclusion element can now contain multiple path-just children to record multiple justifications. Furthermore, it can now have theory, generated-from, and generated-via attributes. New optional attributes conservativity and conservativity-just for stating and justifying conservativity.	180
catalogue	dep	the catalogue mechanism has been eliminated.	
choice	cha	the choice element does not allow symbol children any more, if these are needed, the exercise should have its own theory	210
code	cha	Attributes classid and codebase are deprecated. The attributes pto and pto-version have moved to the data element. The attribute type has been removed and optional attributes theory, generated-from, and generated-via have been added.	202
commonname	dep	This element is deprecated in favor of a metadata/dc:subject element.	

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_068	322	0.792	\begin{tabular}[t]{|l|l|l|l|} \hline conclusion & cha & The natural langauge description in the optional CMP element is no longer allowed, use a phrase element in a CMP that is a sibling to the FMP instead. & 124 \\ \hline constructor & cha & The role attribute is now fixed to object. The commonname child has been replaced by an initial metadata element. & 156 \\ \hline data & aug & new optional attributes original to specify whether the external resource referenced by the href attribute (value external) or the data content is the original (value local). The data element has acquired attributes pto and pto-version from the code and private elements. & 203 \\ \hline dc:* & aug & All Dublin Core tags have been lowercased to synchronize with the tag syntax recommended by the Dublin Core Initiative. The tags were capitalized in OMDoc1.1. Furthermore, dc:contributor, dc:creator, dc:publisher have received an optional xml:id attribute, so that they can be crossreferenced by the new who of the dc : date element. & 98 \\ \hline decomposition & aug & The for attribute is now optional, it need not be given, if the element is a child of a theory-inclusion element. Furthermore, it		conclusion | cha | The natural langauge description in the optional CMP element is no longer allowed, use a phrase element in a CMP that is a sibling to the FMP instead. | 124 constructor | cha | The role attribute is now fixed to object. The commonname child has been replaced by an initial metadata element. | 156 data | aug | new optional attributes original to specify whether the external resource referenced by the href attribute (value external) or the data content is the original (value local). The data element has acquired attributes pto and pto-version from the code and private elements. | 203 dc:* | aug | All Dublin Core tags have been lowercased to synchronize with the tag syntax recommended by the Dublin Core Initiative. The tags were capitalized in OMDoc1.1. Furthermore, dc:contributor, dc:creator, dc:publisher have received an optional xml:id attribute, so that they can be crossreferenced by the new who of the dc:date element. | 98 decomposition | aug | The for attribute is now optional, it need not be given, if the element is a child of a theory-inclusion element. Furthermore, it can now have a theory, generated-from, and generated-via attributes. | 184 dc:description | aug | The dc:description can now have the optional xml:id, and CSS attributes | 99 definition | aug | The definition element can now have the type pattern for pattern-defined functions. This is a degenerate case of the type inductive. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism. | 139 effect | aug | allows an optional xml:id attribute | 204 example | aug | The example element now has the optional theory attribute that specifies the home theory. Furthermore, it can now have attributes theory, generated-from, and generated-via. | 146 exercise | cha | the exercise element does not allow symbol children any more, if these are needed, the exercise should have its own theory. Furthermore, it can now have a theory, generated-from, and generated-via attributes. | 209 extradata | cha | The content of the old extradata element can now be directly in the metadata/dc:subject element. |

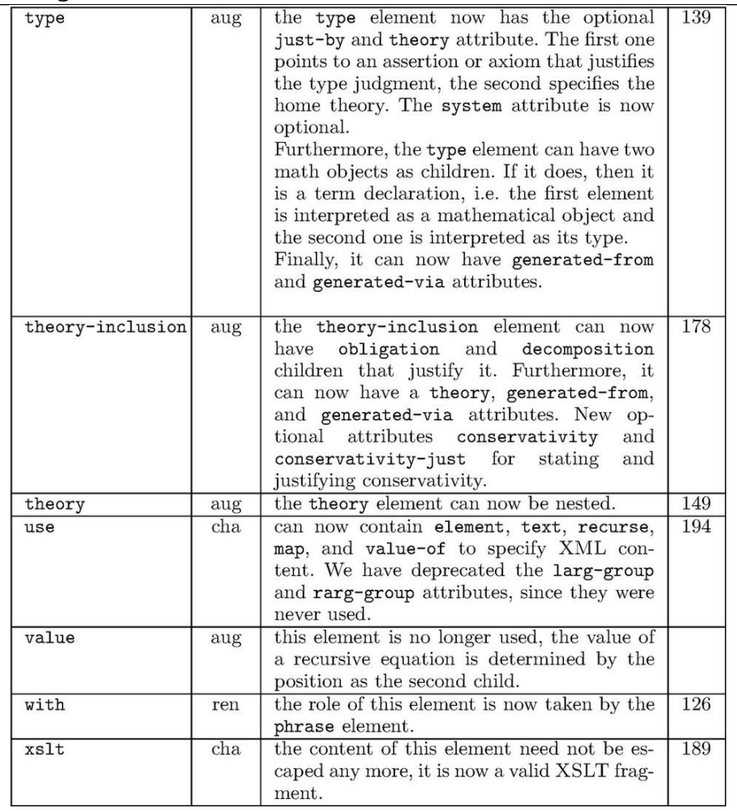
Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_069	323	0.990	\begin{tabular}[t]{|l|l|l|l|} \hline element & aug & The element element now allows the map and separator elements in the body. Furthermore, it carries the optional attributes crid for parallel markup, cr for cross-references, and ns for specifying the namespace. & 190 \\ \hline hint & aug & the hint element can now appear on toplevel and has a for attribute. It does not allow symbol children any more, if these are needed, the exercise should have its own theory. Furthermore, the exercise can now have a theory, generated-from, and generated-via attributes. & 209 \\ \hline hypothesis & cha & the discharged-in attribute has been eliminated. Scoping is now specified in terms of the enclosing proof element. Furthermore, the symbol child is no longer allowed inside the element. A sibling symbol should be used. & 162 \\ \hline inclusion & aug & allows optional attributes xml:id, conservativity, and conservativity-just for stating and justifying conservativity. & 179 \\ \hline imports & lib & the xml:id is now optional. New optional attributes conservativity and conservativity-just for stating and justifying conservativity. & 150 \\ \hline input & aug & & allows an optional xml:id attribute & 204 \\ \hline legacy & new & An element for encapsulating legacy mathematics, can be used wherever m:math and om:OMOBJ are allowed.		element | aug | The element element now allows the map and separator elements in the body. Furthermore, it carries the optional attributes crid for parallel markup, cr for cross-references, and ns for specifying the namespace. | 190 hint | aug | the hint element can now appear on top-level and has a for attribute. It does not allow symbol children any more, if these are needed, the exercise should have its own theory. Furthermore, the exercise can now have a theory, generated-from, and generated-via attributes. | 209 hypothesis | cha | the discharged-in attribute has been eliminated. Scoping is now specified in terms of the enclosing proof element. Furthermore, the symbol child is no longer allowed inside the element. A sibling symbol should be used. | 162 inclusion | aug | allows optional attributes xml:id, conservativity, and conservativity-just for stating and justifying conservativity. | 179 imports | lib | the xml:id is now optional. New optional attributes conservativity and conservativity-just for stating and justifying conservativity. | 150 input | aug | allows an optional xml:id attribute | 204 legacy | new | An element for encapsulating legacy mathematics, can be used wherever m:math and om:OMOBJ are allowed. | 120 loc | dep | The catalogue mechanism has been eliminated. | m:math | new | Content-MathML is now allowed wherever OpenMath objects were allowed before. | 114 map | new | this element allows to map its style directives over a list of e.g. arguments | 191 mc | aug | the mc element can now have a for attribute. It does not allow symbol children any more, if these are needed, the dominating exercise element should have its own theory. Furthermore, the mc element can now have a theory, generated-from, and generated-via attributes. | 210 measure | aug | allows an optional xml:id attribute | 141 metacomment | dep | This element is superseded by the omtext element. | 124

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_070	324	0.658	\begin{tabular}[t]{|l|l|l|l|} \hline morphism & aug & The morphism element now carries the optional attributes consistency, exhaustivity, hiding, and type. Furthermore the content model allows optional elements measure and ordering after the requation children to specify termination information like in definition. & 92 \\ \hline obligation & aug & allows an optional xml:id attribute & 178 \\ \hline omdoc & aug & This element can now have a theory, generated-from, and generated-via attributes. & 90 \\ \hline omgroup & cha & The values dataset and labeled-dataset are deprecated in Version 1.2 of OMDoc, since we provide tables in module RT; see Section 14.6 for details. Furthermore, the element can now have the attributes, modules, theory, generated-from, and generated-via. & 93 \\ \hline omlet & cha & omlet can no longer occur at top-level (it just does not make sense). The data model for this element has been totally reworked, inspired by the xhtml:object element. & 205 \\ \hline omstyle & aug & This element can now have generated-from, and generated-via attributes. New attribute xref that allows to inherit the information from another omstyle element. & 188 \\ \hline om:* &	

morphism	aug	The morphism element now carries the optional attributes consistency, exhaustivity, hiding, and type. Furthermore the content model allows optional elements measure and ordering after the requation children to specify termination information like in definition.	92
obligation	aug	allows an optional xml:id attribute	178
omdoc	aug	This element can now have a theory, generated-from, and generated-via attributes.	90
omgroup	cha	The values dataset and labeled-dataset are deprecated in Version 1.2 of OMDoc, since we provide tables in module RT; see Section 14.6 for details. Furthermore, the element can now have the attributes, modules, theory, generated-from, and generated-via.	93
omlet	cha	omlet can no longer occur at top-level (it just does not make sense). The data model for this element has been totally reworked, inspired by the xhtml:object element.	205
omstyle	aug	This element can now have generated-from, and generated-via attributes. New attribute xref that allows to inherit the information from another omstyle element.	188
om:*	aug	with OpenMath2, the OpenMath elements carry an optional id attribute for structure sharing via the om:OMR element. Furthermore, in OMDoc, they carry cref attributes for parallel markup with cross-references.	108
om:OMFOREIGN	new	The om:OMFOREIGN element can be used to encapsulate arbitrary XML data in OpenMath attributions.	110
om:OMR	new	In the OpenMath2 standard, this element is the main vehicle of the structure sharing representation.	112
omtext	aug	the type attribute can now also have the values axiom, definition, theorem, proposition, lemma, corollary, postulate, conjecture, false-conjecture, obligation, assumption, and formula. Furthermore, omtext can now have theory, generated-from, and generated-via and verbalizes attributes.	124
ordering	aug	Now allows the optional xml:id and terminating attributes. The latter points to a termination assertion.	141

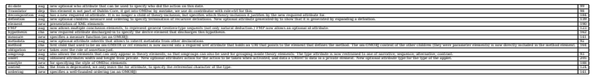
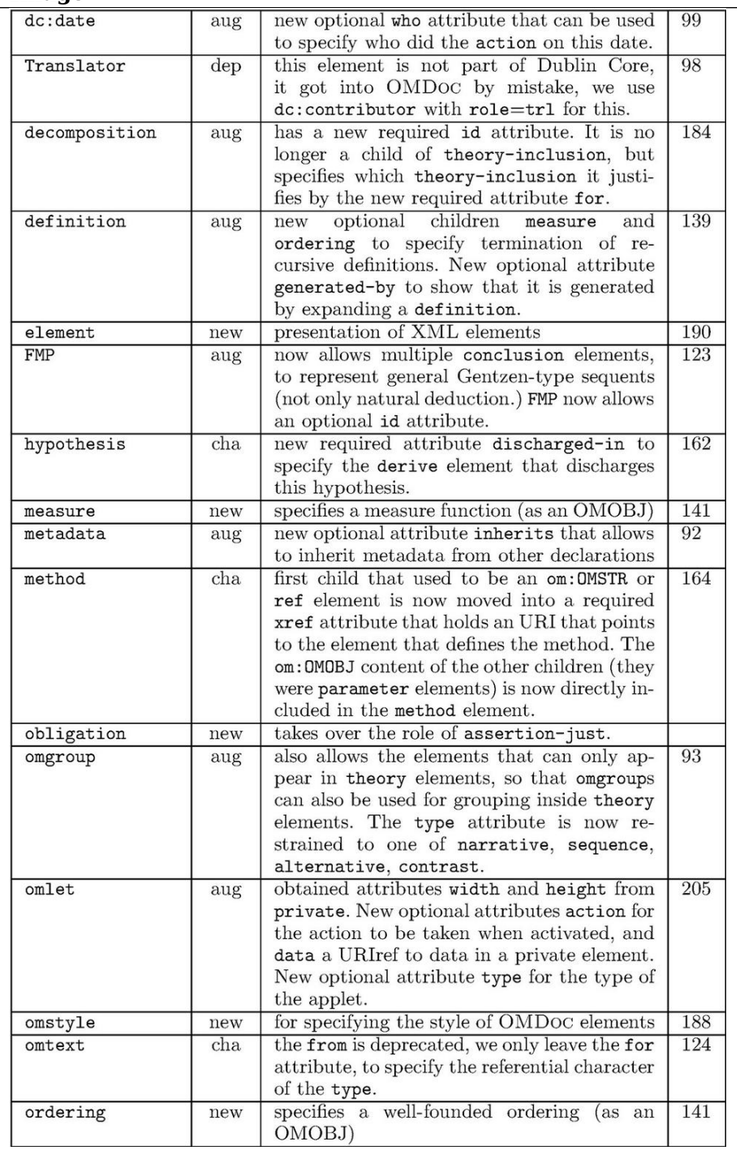
Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_071	325	1.000	\begin{tabular}[t]{|l|l|l|l|} \hline output & aug & allows an optional xml:id attribute & 204 \\ \hline pattern & aug & this element is no longer used, the pattern of a recursive equation is determined by the position as the first child. & \\ \hline path-just & aug & The element can now appear as a toplevel element, if it does, the attribute for must point to the axiom-inclusion element it justifies. It also now allows an optional xml:id attribute & 184 \\ \hline phrase & new & used to mark up phrases in CMPs and supply them with identifiers and links to context that can be used for presentation and referencing. & 126 \\ \hline presentation & cha & The theory is not allowed any more, to refer to a symbol outside its theory use its xml:id attribute. The element now also allows a mutilingual CMP group, so that it can be used as a notation definition element in mathematical vernacular. & 192 \\ \hline private & cha & The replaces attribute is now called reformulates. The attributes pto and pto-version have moved to the data element. The attribute type has been removed and optional attributes theory, generated-from, and generated-via have been added. & 202 \\ \hline proof & lib & The for attribute is now optional to allow for proofs as objects of mathematical discourse. Furthermore, it can now have generated-from and generated-via attributes. & 161 \\ \hline proofobject & lib & The for attribute is now optional to allow for proofs as objects of mathematical discourse. Furthermore, it can now have generated-from and generated-via attributes. & 169 \\ \hline recognizer & cha & The role attribute was fixed to object. The commonname child has been replaced by an initial metadata element. & 157 \\ \hline ref & aug & ref now has an optional xml:id attribute that identifies it. & 94 \\ \hline selector & cha & The role attribute was fixed to object. The commonname child has been replaced by an initial metadata element. & 157 \\ \hline solution & cha & the solution element now allows arbitrary OMDoc top-level elements as children. Furthermore, it can now have a theory, generated-from, and generated-via attributes. & 209 \\ \hline		output	aug	allows an optional xml:id attribute	204
pattern	aug	this element is no longer used, the pattern of a recursive equation is determined by the position as the first child.	
path-just	aug	The element can now appear as a toplevel element, if it does, the attribute for must point to the axiom-inclusion element it justifies. It also now allows an optional xml:id attribute	184
phrase	new	used to mark up phrases in CMPs and supply them with identifiers and links to context that can be used for presentation and referencing.	126
presentation	cha	The theory is not allowed any more, to refer to a symbol outside its theory use its xml:id attribute. The element now also allows a mutilingual CMP group, so that it can be used as a notation definition element in mathematical vernacular.	192
private	cha	The replaces attribute is now called reformulates. The attributes pto and pto-version have moved to the data element. The attribute type has been removed and optional attributes theory, generated-from, and generated-via have been added.	202
proof	lib	The for attribute is now optional to allow for proofs as objects of mathematical discourse. Furthermore, it can now have generated-from and generated-via attributes.	161
proofobject	lib	The for attribute is now optional to allow for proofs as objects of mathematical discourse. Furthermore, it can now have generated-from and generated-via attributes.	169
recognizer	cha	The role attribute was fixed to object. The commonname child has been replaced by an initial metadata element.	157
ref	aug	ref now has an optional xml:id attribute that identifies it.	94
selector	cha	The role attribute was fixed to object. The commonname child has been replaced by an initial metadata element.	157
solution	cha	the solution element now allows arbitrary OMDoc top-level elements as children. Furthermore, it can now have a theory, generated-from, and generated-via attributes.	209

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_072	326	1.000	\begin{tabular}[t]{|l|l|l|l|} \hline sortdef & cha & The role attribute was fixed to sort. The type from the adt element is now on the sortdef element. The commonname child has been replaced by an initial metadata element. & 156 \\ \hline dc:subject & aug & The dc:subject can now have the optional dc:id, and CSS attributes & 99 \\ \hline style & aug & The style element now allows a map element in the body & 189 \\ \hline symbol & cha & may no longer contain selector, since it only makes sense for constructors in data types. The kind attribute has been renamed to role for compatibility with OpenMath2 and can have the additional values binder, attribution, semantic-attribution, and error corresponding to the OpenMath 2 roles. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism. & 136 \\ \hline term & new & the term element can appear in mathematical text and contain it. It is used to link technical terms to symbols defined in content dictionaries via its cd and name attributes. & 128 \\ \hline theory & cha & the theory element loses the CMP and commonname children, use the Dublin Core metadata elements dc:description and dc:subject instead. The theory element also gains the optional cdbase attribute to specify the disambiguating string prescribed for content dictionaries by the OpenMath2 standard. The xml:id is now optional, it only needs to be specified, if the theory has constitutive elements. Finally, the element has gained the optional attributes cdurl, cdbase, cdreviewdate, cdversion, cdrevision, and cdstatus attributes for encoding the management metadata of OpenMath content dictionaries. & 149 \\ \hline dc:title & aug & The dc:title can now have the optional dc:id, and CSS attributes. & 98 \\ \hline tgroup & new & The tgroup can be used to structure theories like documents. & 149 \\ \hline \end{tabular}		<table><tr><td>sortdef</td><td>cha</td><td>The role attribute was fixed to sort. The type from the adt element is now on the sortdef element. The commonname child has been replaced by an initial metadata element.</td><td>156</td></tr><tr><td>dc:subject</td><td>aug</td><td>The dc:subject can now have the optional dc:id, and CSS attributes</td><td>99</td></tr><tr><td>style</td><td>aug</td><td>The style element now allows a map element in the body</td><td>189</td></tr><tr><td>symbol</td><td>cha</td><td>may no longer contain selector, since it only makes sense for constructors in data types. The kind attribute has been renamed to role for compatibility with OpenMath2 and can have the additional values binder, attribution, semantic-attribution, and error corresponding to the OpenMath 2 roles. Furthermore, an optional attribute generated-via has been added to allow generation via a theory morphism.</td><td>136</td></tr><tr><td>term</td><td>new</td><td>the term element can appear in mathematical text and contain it. It is used to link technical terms to symbols defined in content dictionaries via its cd and name attributes.</td><td>128</td></tr><tr><td>theory</td><td>cha</td><td>the theory element loses the CMP and commonname children, use the Dublin Core metadata elements dc:description and dc:subject instead. The theory element also gains the optional cdbase attribute to specify the disambiguating string prescribed for content dictionaries by the OpenMath2 standard. The xml:id is now optional, it only needs to be specified, if the theory has constitutive elements. Finally, the element has gained the optional attributes cdurl, cdbase, cdreviewdate, cdversion, cdrevision, and cdstatus attributes for encoding the management metadata of OpenMath content dictionaries.</td><td>149</td></tr><tr><td>dc:title</td><td>aug</td><td>The dc:title can now have the optional dc:id, and CSS attributes.</td><td>98</td></tr><tr><td>tgroup</td><td>new</td><td>The tgroup can be used to structure theories like documents.</td><td>149</td></tr></table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_073	327	■ 1.000	\begin{tabular}[t]{|l|l|l|l|l|} \hline type & aug & \begin{tabular}[t]{l} the type element now has the optional just-by and theory attribute. The first one points to an assertion or axiom that justifies the type judgment, the second specifies the home theory. The system attribute is now optional. \\ Furthermore, the type element can have two math objects as children. If it does, then it is a term declaration, i.e. the first element is interpreted as a mathematical object and the second one is interpreted as its type. \\ Finally, it can now have generated-from and generated-via attributes. \end{tabular} & 139 \\ \hline theory-inclusion & aug & the theory-inclusion element can now have obligation and decomposition children that justify it. Furthermore, it can now have a theory, generated-from, and generated-via attributes. New optional attributes conservativity and conservativity-just for stating and justifying conservativity. & 178 \\ \hline theory & aug & the theory element can now be nested. & 149 \\ \hline use & cha & can now contain element, text, recurse, map, and value-of to specify XML content. We have deprecated the larg-group and rarg-group attributes, since they were never used. & 194 \\ \hline value & aug & this element is no longer used, the value of a recursive equation is determined by the position as the second child. & \\ \hline with & ren & the role of this element is now taken by the phrase element. & 126 \\ \hline xslt & cha & the content of this element need not be escaped any more, it is now a valid XSLT fragment. & 189 \\ \hline \end{tabular}		

type	aug	the type element now has the optional just-by and theory attribute. The first one points to an assertion or axiom that justifies the type judgment, the second specifies the home theory. The system attribute is now optional. Furthermore, the type element can have two math objects as children. If it does, then it is a term declaration, i.e. the first element is interpreted as a mathematical object and the second one is interpreted as its type. Finally, it can now have generated-from and generated-via attributes.	139
theory-inclusion	aug	the theory-inclusion element can now have obligation and decomposition children that justify it. Furthermore, it can now have a theory, generated-from, and generated-via attributes. New optional attributes conservativity and conservativity-just for stating and justifying conservativity.	178
theory	aug	the theory element can now be nested.	149
use	cha	can now contain element, text, recurse, map, and value-of to specify XML content. We have deprecated the larg-group and rarg-group attributes, since they were never used.	194
value	aug	this element is no longer used, the value of a recursive equation is determined by the position as the second child.	
with	ren	the role of this element is now taken by the phrase element.	126
xslt	cha	the content of this element need not be escaped any more, it is now a valid XSLT fragment.	189

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_074	328	■ 1.000	\begin{tabular}[t]{|l|l|l|l|} \hline element & state & comments & cf. \\ \hline attribute & new & presentation of attributes for XML elements & 191 \\ \hline alternative & cha & new form of the alternative-def element, it can now also used as an alternative to axiom. Compared to alternative-def it has a new optional attribute generated-by to show that an assertion is generated by expanding a some other element like adt. & 145 \\ \hline alternative-def & dep & new form is alternative, since there can be alternative axioms too. & \\ \hline argument & cha & attribute sort is now of type IDREF, since it must be local in the definition. & 156 \\ \hline assertion & aug & more values for the type attribute, new optional attribute generated-by to show that an assertion is generated by expanding a definition or an adt. New optional attribute proofs. & 142 \\ \hline assertion-just & dep & this is now obligation & \\ \hline axiom & aug & new optional attribute generated-by to show that an axiom is generated by expanding a definition. & 138 \\ \hline axiom-inclusion & cha & now allows a CMP group for descriptive text, includes a set of obligation elements instead of an assertion-just. The timestamp attribute is deprecated, use dc:date with appropriate		element | state | comments | cf. attribute | new | presentation of attributes for XML elements | 191 alternative | cha | new form of the alternative-def element, it can now also used as an alternative to axiom. Compared to alternative-def it has a new optional attribute generated-by to show that an assertion is generated by expanding a some other element like adt. | 145 alternative-def | dep | new form is alternative, since there can be alternative axioms too. | argument | cha | attribute sort is now of type IDREF, since it must be local in the definition. | 156 assertion | aug | more values for the type attribute, new optional attribute generated-by to show that an assertion is generated by expanding a definition or an adt. New optional attribute proofs. | 142 assertion-just | dep | this is now obligation | axiom | aug | new optional attribute generated-by to show that an axiom is generated by expanding a definition. | 138 axiom-inclusion | cha | now allows a CMP group for descriptive text, includes a set of obligation elements instead of an assertion-just. The timestamp attribute is deprecated, use dc:date with appropriate action instead | 180 CMP | cha | the attribute format is now deprecated, it makes no sense, since we are more strict and consistent about CMP content. CMP now allows an optional id attribute. | 122 code | cha | Attributes width and height now in omlet, got attributes classid and codebase from private. Attribute format moved to data children. The multilingual group of CMP elements for description is deprecated, use metadata/dc:description instead. Child element data may appear multiple times (with different values of the format). | 202 constructor | aug | new optional child recognizer for a recognizer predicate | 156 Coverage | dep | this Dublin Core element specifies the place or time which the publication's contents addresses. This does not seem appropriate for the mathematical content of OMDoc. | data | aug | new optional attributes size to specify the size of the data file that is referenced by the href attribute and format for the format the data is in. | 203

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_075	329	0.498	\begin{tabular}[t]{|l|l|l|l|} \hline dc:date & aug & new optional who attribute that can be used to specify who did the action on this date. & 99 \\ \hline Translator & dep & this element is not part of Dublin Core, it got into OMDoc by mistake, we use dc:contributor with role=trl for this. & 98 \\ \hline decomposition & aug & has a new required id attribute. It is no longer a child of theory-inclusion, but specifies which theory-inclusion it justifies by the new required attribute for. & 184 \\ \hline definition & aug & new optional children measure and ordering to specify termination of recursive definitions. New optional attribute generated-by to show that it is generated by expanding a definition. & 139 \\ \hline element & new & presentation of XML elements & 190 \\ \hline FMP & aug & now allows multiple conclusion elements, to represent general Gentzen-type sequents (not only natural deduction.) FMP now allows an optional id attribute. & 123 \\ \hline hypothesis & cha & new required attribute discharged-in to specify the derive element that discharges this hypothesis. & 162 \\ \hline measure & new & specifies a measure function (as an OMOBJ) & 141 \\ \hline metadata & aug & new optional attribute inherits that allows to inherit metadata from other declarations & 92 \\ \hline method & cha & first child that used to be an om:OMSTR or ref element is now moved into a required xref attribute that holds an URI that points to the element that defines the method. The om:OMOBJ content of the other children (they were parameter elements) is now directly included in the method element. & 164 \\ \hline obligation & new & takes over the role of assertion-just. & \\ \hline omgroup & aug & also allows the elements that can only appear in theory elements, so that omgroups can also be used for grouping inside theory elements. The type attribute is now restrained to one of narrative, sequence, alternative, contrast. & 93 \\ \hline omlet & aug & obtained attributes width and height from private. New optional attributes action for the action to be taken when activated, and data a URIref to data in a private element. New optional attribute type for the type of the applet. & 205 \\ \hline omstyle & new & for specifying the style of OMDoc elements & 188 \\ \hline omtext & cha & the from is deprecated, we only leave the for attribute, to specify the referential character of the type. & 124 \\ \hline ordering & new & specifies a well-founded ordering (as an OMOBJ) & 141 \\ \hline		

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_076	330	0.999	\begin{tabular}[t]{|l|l|l|l|} \hline parameter & dep & the om:OMOBJ element child is now directly a child of method & \\ \hline pattern & cha & the child can be an arbitraryOpenMath element. & \\ \hline premise & cha & new optional attribute rank for the importance in the inference rule. The old href attribute is renamed to xref to be consistent with other cross-referencing. & \\ \hline presentation & aug & \begin{tabular}[t]{l} New attribute xref that allows to inherit the information from another presentation element. New attribute theory to specify the theory the symbol is from; without this, referencing in OMDoc is not unique. \\ The parent attribute has been renamed to role and now takes the values applied, binding, and key, since we want to be less OpenMath-centric \end{tabular} & 192 \\ \hline private & cha & \begin{tabular}[t]{l} new optional attribute for to point to an OMDoc element it provides data for. As a consequence, private elements are no longer allowed in other OMDoc elements, only on top-level. New attribute replaces as a pointer to the OMDoc elements that are replaced by the system-specific information in this element. Old attributes width and height now in omlet. Attribute format moved to data children. \\ The descriptive CMP elements are deprecated, use metadata/dc:description instead. \\ Child element data may appear multiple times (with different values of the format). The attributes classid and codebase are deprecated, since they only make sense on the code element.	q 202

parameter	dep	the om:OMOBJ element child is now directly a child of method	
pattern	cha	the child can be an arbitraryOpenMath element.	
premise	cha	new optional attribute rank for the importance in the inference rule. The old href attribute is renamed to xref to be consistent with other cross-referencing.	
presentation	aug	New attribute xref that allows to inherit the information from another presentation element. New attribute theory to specify the theory the symbol is from; without this, referencing in OMDoc is not unique. The parent attribute has been renamed to role and now takes the values applied, binding, and key, since we want to be less OpenMath-centric	192
private	cha	new optional attribute for to point to an OMDoc element it provides data for. As a consequence, private elements are no longer allowed in other OMDoc elements, only on top-level. New attribute replaces as a pointer to the OMDoc elements that are replaced by the system-specific information in this element. Old attributes width and height now in omlet. Attribute format moved to data children. The descriptive CMP elements are deprecated, use metadata/dc:description instead. Child element data may appear multiple times (with different values of the format). The attributes classid and codebase are deprecated, since they only make sense on the code element.	q 202
proof	cha	attribute theory is now optional, since the element can appear inside a theory element.	161
proofobject	cha	attribute theory is now optional, since the element can appear inside a theory element.	161
recognizer	new	specifies the recognizer predicate of a sort.	157
recurse	new	recursive calls to presentation in style.	191
ref	cha	attribute kind renamed to type.	94
selector	cha	the old type attribute (had values total and partial) is deprecated, its duty is now carried by an attribute total (values yes and no).	157
signature	dep	for the moment	
sortdef	cha	has a mandatory name attribute, otherwise the defined symbol has no name.	156

<table>
<tr><th>Identifier</th><th>Page</th><th>Conf.</th><th>LaTeX source</th><th>Rendered</th><th>Image</th></tr>
<tr><td>kohlhase-omdoc_TAB_077</td><td>331</td><td>0.999</td><td>\begin{tabular}[t]{|l|l|l|l|} \hline style & new & allows to specify style information in presentation and omstyle elements using a simplified OMDoc-internalized version of XSLT. & 189 \\ \hline symbol & aug & new optional attribute generated-by to show that it is generated by expanding a definition. & 136 \\ \hline text & new & presentation of text in omstyle. & 190 \\ \hline theory-inclusion & cha & now allows CMP group for descriptive text, no longer has a decomposition child, this is now attached by its for attribute. The timestamp attribute is deprecated, use dc:date with appropriate action instead. & 178 \\ \hline type & aug & can now also appear on top-level. Has an optional id attribute for identification, and an optional for attribute to point to a symbol element it declares type information for. & 139 \\ \hline use & aug & New attribute element allows to specify that the content should be encased in an XML element with the attribute-value pairs specified in the string specified in the attribute attributes. & 194 \\ \hline value-of & new & presentation of values in style. & 190 \\ \hline with & new & used to supply fragments of text in CMPs with style and id attributes that can be used for presentation and referencing. & 126 \\ \hline xslt & new & allows to embed XSLT into presentation and omstyle elements. & 189 \\ \hline \end{tabular}</td><td><table><tr><td>style</td><td>new</td><td>allows to specify style information in presentation and omstyle elements using a simplified OMDoc-internalized version of XSLT.</td><td>189</td></tr><tr><td>symbol</td><td>aug</td><td>new optional attribute generated-by to show that it is generated by expanding a definition.</td><td>136</td></tr><tr><td>text</td><td>new</td><td>presentation of text in omstyle.</td><td>190</td></tr><tr><td>theory-inclusion</td><td>cha</td><td>now allows CMP group for descriptive text, no longer has a decomposition child, this is now attached by its for attribute. The timestamp attribute is deprecated, use dc:date with appropriate action instead.</td><td>178</td></tr><tr><td>type</td><td>aug</td><td>can now also appear on top-level. Has an optional id attribute for identification, and an optional for attribute to point to a symbol element it declares type information for.</td><td>139</td></tr><tr><td>use</td><td>aug</td><td>New attribute element allows to specify that the content should be encased in an XML element with the attribute-value pairs specified in the string specified in the attribute attributes.</td><td>194</td></tr><tr><td>value-of</td><td>new</td><td>presentation of values in style.</td><td>190</td></tr><tr><td>with</td><td>new</td><td>used to supply fragments of text in CMPs with style and id attributes that can be used for presentation and referencing.</td><td>126</td></tr><tr><td>xslt</td><td>new</td><td>allows to embed XSLT into presentation and omstyle elements.</td><td>189</td></tr></table></td><td><table><tr><td>style</td><td>new</td><td>allows to specify style information in presentation and omstyle elements using a simplified OMDoc-internalized version of XSLT.</td><td>189</td></tr><tr><td>symbol</td><td>aug</td><td>new optional attribute generated-by to show that it is generated by expanding a definition.</td><td>136</td></tr><tr><td>text</td><td>new</td><td>presentation of text in omstyle.</td><td>190</td></tr><tr><td>theory-inclusion</td><td>cha</td><td>now allows CMP group for descriptive text, no longer has a decomposition child, this is now attached by its for attribute. The timestamp attribute is deprecated, use dc:date with appropriate action instead.</td><td>178</td></tr><tr><td>type</td><td>aug</td><td>can now also appear on top-level. Has an optional id attribute for identification, and an optional for attribute to point to a symbol element it declares type information for.</td><td>139</td></tr><tr><td>use</td><td>aug</td><td>New attribute element allows to specify that the content should be encased in an XML element with the attribute-value pairs specified in the string specified in the attribute attributes.</td><td>194</td></tr><tr><td>value-of</td><td>new</td><td>presentation of values in style.</td><td>190</td></tr><tr><td>with</td><td>new</td><td>used to supply fragments of text in CMPs with style and id attributes that can be used for presentation and referencing.</td><td>126</td></tr><tr><td>xslt</td><td>new</td><td>allows to embed XSLT into presentation and omstyle elements.</td><td>189</td></tr></table></td></tr>
<tr><td>kohlhase-omdoc_TAB_078</td><td>332</td><td>1.000</td><td>\begin{tabular}[t]{|l|l|l|l|l|l|l|} \hline Element & p. & Mod. & Required & Optional & D & Content \\ \hline & & & Attribs & Attribs & C & \\ \hline \end{tabular}</td><td><table><tr><td>Element</td><td>p.</td><td>Mod.</td><td>Required</td><td>Optional</td><td>D</td><td>Content</td></tr><tr><td></td><td></td><td></td><td>Attribs</td><td>Attribs</td><td>C</td><td></td></tr></table></td><td><table><tr><td>Element</td><td>p.</td><td>Mod.</td><td>Required</td><td>Optional</td><td>D</td><td>Content</td></tr><tr><td></td><td></td><td></td><td>Attribs</td><td>Attribs</td><td>C</td><td></td></tr></table></td></tr>
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156 & ADT & & xml:id, type, style, class, theory,
generated-from, generated-via & + & sortdef+ \\ \hline
alternative & 145 & ST & for, entailed-by, entails,
entailed-by-thm, entails-thm & xml:id, type, theory,
generated-from, generated-via, uniqueness, exhaustivity,
consistency, existence, style, class & + & CMP*, (FMP|
requation*| (OMOBJ |m:math |legacy)*) \\ \hline answer &
210 & QUIZ & verdict & xml:id, style, class & + & CMP*,
FMP* \\ \hline m:apply & 115 & MML & & id, xlink:href
& - & bvar?, 《CMel》* \\ \hline argument & 156 & ADT &
sort & & + & selector? \\ \hline assertion & 142 & ST &
& xml:id, type, theory, generated-from, generated-via,
style, class & + & CMP*, FMP* \\ \hline assumption &
124 & MTXT & & xml:id, inductive, style, class & + &
CMP*, (OMOBJ |m:math |legacy)? \\ \hline attribute &
191 & PRES & name & & - & (value-of| text)* \\ \hline
axiom & 138 & ST & name & xml:id, type, generated-from,
generated-via, style, class & + & CMP*, FMP* \\ \hline
axiom-inclusion & 180 & CTH & from, to & xml:id, style,
class, theory, generated-from, generated-via
& + & morphism?, (path-just| obligation*) \\ \hline
\end{tabular}</td><td><table>
<tr><td>adt</td><td>156</td><td>ADT</td><td></td><td>xml:id, type, style, class, theory, generated-from, generated-via</td><td>+</td><td>sortdef+</td></tr>
<tr><td>alternative</td><td>145</td><td>ST</td><td>for, entailed-by, entails, entailed-by-thm, entails-thm</td><td>xml:id, type, theory, generated-from, generated-via, uniqueness, exhaustivity, consistency, existence, style, class</td><td>+</td><td>CMP*, (FMP| requation*| (OMOBJ |m:math |legacy)*)</td></tr>
<tr><td>answer</td><td>210</td><td>QUIZ</td><td>verdict</td><td>xml:id, style, class</td><td>+</td><td>CMP*, FMP*</td></tr>
<tr><td>m:apply</td><td>115</td><td>MML</td><td></td><td>id, xlink:href</td><td>−</td><td>bvar?, 《CMel》*</td></tr>
<tr><td>argument</td><td>156</td><td>ADT</td><td>sort</td><td></td><td>+</td><td>selector?</td></tr>
<tr><td>assertion</td><td>142</td><td>ST</td><td></td><td>xml:id, type, theory, generated-from, generated-via, style, class</td><td>+</td><td>CMP*, FMP*</td></tr>
<tr><td>assumption</td><td>124</td><td>MTXT</td><td></td><td>xml:id, inductive, style, class</td><td>+</td><td>CMP*, (OMOBJ |m:math |legacy)?</td></tr>
<tr><td>attribute</td><td>191</td><td>PRES</td><td>name</td><td></td><td>−</td><td>(value-of| text)*</td></tr>
<tr><td>axiom</td><td>138</td><td>ST</td><td>name</td><td>xml:id, type, generated-from, generated-via, style, class</td><td>+</td><td>CMP*, FMP*</td></tr>
<tr><td>axiom-inclusion</td><td>180</td><td>CTH</td><td>from, to</td><td>xml:id, style, class, theory, generated-from, generated-via</td><td>+</td><td>morphism?, (path-just| obligation*)</td></tr>
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& id, xlink:href & - & PCDATA \\ \hline m : cn & 115 &
MML & id, xlink:href & - & \[\begin{aligned} & ([0-9]|,|
.) \\ & (* \mid \mathrm{e}([0-9]|,| .) *) ? \end{aligned}
\] \\ \hline choice & 210 & QUIZ & xml:id, style, class &
+ & CMP*, FMP* \\ \hline \end{tabular}</td><td>(not rendered)</td><td><table>
<tr><td>m:bvar</td><td>115</td><td>MML</td><td></td><td>id, xlink:href</td><td>−</td><td>ci*</td></tr>
<tr><td>m:ci</td><td>115</td><td>MML</td><td></td><td>id, xlink:href</td><td>−</td><td>PCDATA</td></tr>
<tr><td>m:cn</td><td>115</td><td>MML</td><td></td><td>id, xlink:href</td><td>−</td><td>([0-9]|,|.) (*|e([0-9]|,|.)*)?</td></tr>
<tr><td>choice</td><td>210</td><td>QUIZ</td><td></td><td>xml:id, style, class</td><td>+</td><td>CMP*, FMP*</td></tr>
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Identifier	Page	Conf.	LaTeX source	Rendered	Image
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<tr><th>Identifier</th><th>Page</th><th>Conf.</th><th>LaTeX source</th><th>Rendered</th><th>Image</th></tr>
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<tr><td>m:csymbol</td><td>115</td><td>MML</td><td>definitionURL</td><td>id,xlink:href</td><td>-</td><td>EMPTY</td></tr>
<tr><td>data</td><td>203</td><td>EXT</td><td></td><td>format,href, size,original</td><td>-</td><td><![CDATA[...]]></td></tr>
<tr><td>dc:date</td><td>99</td><td>DC</td><td></td><td>action,who</td><td>-</td><td>ISO 8601 norm</td></tr>
<tr><td>dd</td><td>130</td><td>RT</td><td></td><td>xml:id,style, class,index, verbalizes</td><td>+</td><td>CMPcontent</td></tr>
<tr><td>di</td><td>130</td><td>RT</td><td></td><td>xml:id,style, class,index, verbalizes</td><td>+</td><td>dt+,dd*</td></tr>
<tr><td>dl</td><td>130</td><td>RT</td><td></td><td>xml:id,style, class,index, verbalizes</td><td>+</td><td>li*</td></tr>
<tr><td>dt</td><td>130</td><td>RT</td><td></td><td>xml:id,style, class,index, verbalizes</td><td>+</td><td>CMPcontent</td></tr>
<tr><td>decomposition</td><td>184</td><td>DG</td><td>links</td><td>theory, generated-from, generated-via</td><td>-</td><td>EMPTY</td></tr>
<tr><td>definition</td><td>139</td><td>ST</td><td>xml:id,for</td><td>uniqueness, existence, consistency, exhaustivity, type, generated-from, generated-via, style,class</td><td>+</td><td>CMP*,(FMP| requation+|OMOBJ |m:math|legacy)?, measure?,ordering?</td></tr>
<tr><td>dc:description</td><td>99</td><td>DC</td><td></td><td>xml:lang</td><td>-</td><td>CMPcontent</td></tr>
<tr><td>derive</td><td>162</td><td>PF</td><td></td><td>xml:id,style, class</td><td>-</td><td>CMP*,FMP?,method?</td></tr>
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<tr><td>m:csymbol</td><td>115</td><td>MML</td><td>definitionURL</td><td>id, xlink:href</td><td>−</td><td>EMPTY</td></tr>
<tr><td>data</td><td>203</td><td>EXT</td><td></td><td>format, href, size, original</td><td>−</td><td><![CDATA[...]]></td></tr>
<tr><td>dc:date</td><td>99</td><td>DC</td><td></td><td>action, who</td><td>−</td><td>ISO 8601 norm</td></tr>
<tr><td>dd</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>+</td><td>CMPcontent</td></tr>
<tr><td>di</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>+</td><td>dt+,dd*</td></tr>
<tr><td>dl</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>+</td><td>li*</td></tr>
<tr><td>dt</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>+</td><td>CMPcontent</td></tr>
<tr><td>decomposition</td><td>184</td><td>DG</td><td>links</td><td>theory, generated-from, generated-via</td><td>−</td><td>EMPTY</td></tr>
<tr><td>definition</td><td>139</td><td>ST</td><td>xml:id, for</td><td>uniqueness, existence, consistency, exhaustivity, type, generated-from, generated-via, style, class</td><td>+</td><td>CMP*, (FMP| requation+| OMOBJ |m:math |legacy)?, measure?, ordering?</td></tr>
<tr><td>dc:description</td><td>99</td><td>DC</td><td></td><td>xml:lang</td><td>−</td><td>CMPcontent</td></tr>
<tr><td>derive</td><td>162</td><td>PF</td><td></td><td>xml:id, style, class</td><td>−</td><td>CMP*, FMP?, method?</td></tr>
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<tr><td>kohlhase-omdoc_TAB_083</td><td>333</td><td>0.597</td><td>\begin{tabular}[t]{|l|l|l|l|l|l|l|l|} \hline effect & 204 & EXT & & xml:id,style, class & - & CMP*,FMP* \\ \hline element & 190 & PRES & name & xml:id,cr,ns & - & (attribute|element| text|recurse)* \\ \hline example & 146 & ST & for & xml:id,type, assertion, proof,style, class,theory, generated-from, generated-via & + & CMP*|(OMOBJ|m:math |legacy)? \\ \hline \end{tabular}</td><td><table>
<tr><td>effect</td><td>204</td><td>EXT</td><td></td><td>xml:id,style, class</td><td>-</td><td>CMP*,FMP*</td></tr>
<tr><td>element</td><td>190</td><td>PRES</td><td>name</td><td>xml:id,cr,ns</td><td>-</td><td>(attribute|element| text|recurse)*</td></tr>
<tr><td>example</td><td>146</td><td>ST</td><td>for</td><td>xml:id,type, assertion, proof,style, class,theory, generated-from, generated-via</td><td>+</td><td>CMP*|(OMOBJ|m:math |legacy)?</td></tr>
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<tr><td>effect</td><td>204</td><td>EXT</td><td></td><td>xml:id, style, class</td><td>−</td><td>CMP*,FMP*</td></tr>
<tr><td>element</td><td>190</td><td>PRES</td><td>name</td><td>xml:id, cr, ns</td><td>−</td><td>(attribute| element| text| recurse)*</td></tr>
<tr><td>example</td><td>146</td><td>ST</td><td>for</td><td>xml:id, type, assertion, proof, style, class, theory, generated-from, generated-via</td><td>+</td><td>CMP*| (OMOBJ |m:math |legacy)?</td></tr>
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generated-via & + & top-level element* \\ \hline ol & 130 & RT & & xml:id,style, class,index, verbalizes & - & li* \\ \hline om:0MI & 111 & OM & & id,class,style & - & [0-9]* \\ \hline omlet & 205 & EXT & & id,argstr,type, function,action, data,style, class & + & ANY \\ \hline om:0M0BJ & 108 & OM & & id,cdbase, class,style & - & 《(OMel)〉 ? \\ \hline omstyle & 188 & PRES & element & for,xml:id, xref,style, class & - & (style|xslt)* \\ \hline om:0MS & 108 & OM & cd,name & class,style & - & EMPTY \\ \hline omtext & 124 & MTXT & & xml:id,type, for,from, style,theory, generated-from, generated-via & + & CMP+,FMP? \\ \hline om:0MV & 108 & OM & name & class,style & - & EMPTY \\ \hline ordering & 141 & ST & & xml:id & - & OMOBJ|m:math|legacy \\ \hline output & 204 & EXT & & xml:id,style, class	<table><tr><td>obligation</td><td>178</td><td>CTH</td><td>induced-by, assertion</td><td>xml:id</td><td>-</td><td>EMPTY</td></tr><tr><td>om:OMA</td><td>108</td><td>OM</td><td></td><td>id,cdbase</td><td>-</td><td>《OMel》*</td></tr><tr><td>om:OMATTR</td><td>110</td><td>OM</td><td></td><td>id,cdbase</td><td>-</td><td>《OMel》</td></tr><tr><td>om:OMATP</td><td>110</td><td>OM</td><td></td><td>cdbase</td><td>-</td><td>(OMS,(《OMel》 | om:OMFOREIGN))+</td></tr><tr><td>om :0MB</td><td>111</td><td>OM</td><td></td><td>id,class,style, class</td><td>-</td><td>#PCDATA</td></tr><tr><td>om:OMBIND</td><td>109</td><td>OM</td><td></td><td>id,cdbase</td><td>-</td><td>《OMel》,om:OMBVAR,《OMel》 ?</td></tr><tr><td>om :OMBVAR</td><td>109</td><td>OM</td><td></td><td></td><td>-</td><td>(om:OMV|om:OMATTR)+</td></tr><tr><td>om:OMFOREIGN</td><td>110</td><td>OM</td><td></td><td>id,cdbase</td><td>-</td><td>ANY</td></tr><tr><td>omdoc</td><td>90</td><td>DOC</td><td></td><td>xml:id,type, version, style,class, xmlns,theory, generated-from, generated-via</td><td>+</td><td>(top-level 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Identifier	Page	Conf.	LaTeX source	Rendered	Image
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kohlhase-omdoc_TAB_094	336	0.926	\begin{tabular}[t]{|l|l|l|l|l|l|l|l|} \hline selector & 157 & ADT & name & type, scope, role, total, style, class & + & \ \ \hline solution & 209 & QUIZ & & xml:id, for, style, class, theory, generated-from, generated-via & + & (CMP*, FMP*) | proof \ \ \hline sortdef & 156 & ADT & name & role, scope, style, class & + & (constructor|insort)* \ \ \hline dc:source & 100 & DC & & & & - & ANY \ \ \hline style & 189 & PRES & format & xml:lang, requires & - & (element | text | recurse | value-of)* \ \ \hline dc:subject & 99 & DC & & xml:lang & - & CMPcontent \ \ \hline symbol & 136 & ST & name & role, scope, style, class, generated-from, generated-via & + & type* \ \ \hline \end{tabular}	selector 157 ADT name type, scope, role, total, style, class + solution 209 QUIZ xml:id, for, style, class, theory, generated-from, generated-via + (CMP*, FMP*) | proof sortdef 156 ADT name role, scope, style, class + (constructor|insort)* dc:source 100 DC - ANY style 189 PRES format xml:lang, requires - (element | text | recurse | value-of)* dc:subject 99 DC xml:lang - CMPcontent symbol 136 ST name role, scope, style, class, generated-from, generated-via + type*	selector 157 ADT name type, scope, role, total, style, class + solution 209 QUIZ xml:id, for, style, class, theory, generated-from, generated-via + (CMP*, FMP*) | proof sortdef 156 ADT name role, scope, style, class + (constructor|insort)* dc:source 100 DC – ANY style 189 PRES format xml:lang, requires – (element | text | recurse | value-of)* dc:subject 99 DC xml:lang – CMPcontent symbol 136 ST name role, scope, style, class, generated-from, generated-via + type*
kohlhase-omdoc_TAB_095	336	0.958	\begin{tabular}[t]{|l|l|l|l|l|l|l|l|} \hline table & 130 & RT & & xml:id, style, class, index, verbalizes & - & tr* \ \ \hline term & 128 & MTXT & cd, name & xml:id, role, style, class & - & CMP content \ \ \hline \end{tabular}	table 130 RT xml:id, style, class, index, verbalizes - tr* term 128 MTXT cd, name xml:id, role, style, class - CMP content	table 130 RT xml:id, style, class, index, verbalizes – tr* term 128 MTXT cd, name xml:id, role, style, class – CMP content

<table>
<tr><th>Identifier</th><th>Page</th><th>Conf.</th><th>LaTeX source</th><th>Rendered</th><th>Image</th></tr>
<tr><td>kohlhase-omdoc_TAB_096</td><td>337</td><td>0.863</td><td>\begin{tabular}[t]{|l|l|l|l|l|l|l|l|} \hline text & 190 & PRES & & & - & \#PCDATA \\ \hline td & 130 & RT & & xml:id, style, class, index, verbalizes & - & Math Vernacular \\ \hline th & 130 & RT & & xml:id, style, class, index, verbalizes & - & Math Vernacular \\ \hline theory & 149 & ST & xml:id & cdbase, style, class & + & (statement/theory)* \\ \hline theory-inclusion & 178 & CTH & from, to & xml:id, style, class, theory, generated-from, generated-via & + & (morphism, decomposition?) \\ \hline tr & 130 & RT & & xml:id, style, class, index, verbalizes & - & (td|th)* \\ \hline dc:title & 98 & DC & & xml:lang & - & CMPcontent \\ \hline tgroup & 149 & DOC & & xml:id, type, style, class, modules, generated-from, generated-via & + & top-level or theoryconstitutive element* \\ \hline type & 139 & ST & system & xml:id, for, style, class & - & CMP*, (OMOBJ |m:math |legacy) \\ \hline dc:type & 100 & DC & & & - & fixed: "Dataset" or "Text" or "Collection" \\ \hline \end{tabular}</td><td><table>
<tr><td>text</td><td>190</td><td>PRES</td><td></td><td></td><td>-</td><td>#PCDATA</td></tr>
<tr><td>td</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>-</td><td>Math Vernacular</td></tr>
<tr><td>th</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>-</td><td>Math Vernacular</td></tr>
<tr><td>theory</td><td>149</td><td>ST</td><td>xml:id</td><td>cdbase, style, class</td><td>+</td><td>(statement/theory)*</td></tr>
<tr><td>theory-inclusion</td><td>178</td><td>CTH</td><td>from, to</td><td>xml:id, style, class, theory, generated-from, generated-via</td><td>+</td><td>(morphism, decomposition?)</td></tr>
<tr><td>tr</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>-</td><td>(td|th)*</td></tr>
<tr><td>dc:title</td><td>98</td><td>DC</td><td></td><td>xml:lang</td><td>-</td><td>CMPcontent</td></tr>
<tr><td>tgroup</td><td>149</td><td>DOC</td><td></td><td>xml:id, type, style, class, modules, generated-from, generated-via</td><td>+</td><td>top-level or theoryconstitutive element*</td></tr>
<tr><td>type</td><td>139</td><td>ST</td><td>system</td><td>xml:id, for, style, class</td><td>-</td><td>CMP*, (OMOBJ |m:math |legacy)</td></tr>
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<tr><td>text</td><td>190</td><td>PRES</td><td></td><td></td><td>–</td><td>#PCDATA</td></tr>
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<tr><td>th</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>–</td><td>Math Vernacular</td></tr>
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<tr><td>dc:title</td><td>98</td><td>DC</td><td></td><td>xml:lang</td><td>–</td><td>CMPcontent</td></tr>
<tr><td>tgroup</td><td>149</td><td>DOC</td><td></td><td>xml:id, type, style, class, modules, generated-from, generated-via</td><td>+</td><td>top-level or theory-constitutive element*</td></tr>
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<tr><td>dc:type</td><td>100</td><td>DC</td><td></td><td></td><td>–</td><td>fixed: "Dataset" or "Text" or "Collection"</td></tr>
</table></td></tr>
<tr><td>kohlhase-omdoc_TAB_097</td><td>337</td><td>0.546</td><td>\begin{tabular}[t]{|l|l|l|l|l|l|l|l|} \hline ul & 130 & RT & & xml:id, style, class, index, verbalizes & - & li* \\ \hline use & 194 & PRES & format & xml:lang, requires, fixity, lbrack, rbrack, separator, crossref-symbol, element, attributes & - & (use | xslt | style)* \\ \hline value-of & 190 & PRES & select & & - & EMPTY \\ \hline phrase & 126 & MTXT & & xml:id, style, class, index, verbalizes, type & - & CMP content \\ \hline xslt & 189 & PRES & format & xml:lang, requires & - & XSLT fragment \\ \hline \end{tabular}</td><td><table>
<tr><td>ul</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>-</td><td>li*</td></tr>
<tr><td>use</td><td>194</td><td>PRES</td><td>format</td><td>xml:lang, requires, fixity, lbrack, rbrack, separator, crossref-symbol, element, attributes</td><td>-</td><td>(use | xslt | style)*</td></tr>
<tr><td>value-of</td><td>190</td><td>PRES</td><td>select</td><td></td><td>-</td><td>EMPTY</td></tr>
<tr><td>phrase</td><td>126</td><td>MTXT</td><td></td><td>xml:id, style, class, index, verbalizes, type</td><td>-</td><td>CMP content</td></tr>
<tr><td>xslt</td><td>189</td><td>PRES</td><td>format</td><td>xml:lang, requires</td><td>-</td><td>XSLT fragment</td></tr>
</table></td><td><table>
<tr><td>ul</td><td>130</td><td>RT</td><td></td><td>xml:id, style, class, index, verbalizes</td><td>–</td><td>li*</td></tr>
<tr><td>use</td><td>194</td><td>PRES</td><td>format</td><td>xml:lang, requires, fixity, lbrack, rbrack, separator, crossref-symbol, element, attributes</td><td>–</td><td>(use | xslt | style)*</td></tr>
<tr><td>value-of</td><td>190</td><td>PRES</td><td>select</td><td></td><td>–</td><td>EMPTY</td></tr>
<tr><td>phrase</td><td>126</td><td>MTXT</td><td></td><td>xml:id, style, class, index, verbalizes, type</td><td>–</td><td>CMP content</td></tr>
<tr><td>xslt</td><td>189</td><td>PRES</td><td>format</td><td>xml:lang, requires</td><td>–</td><td>XSLT fragment</td></tr>
</table></td></tr>
</table>

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_098	338	0.805	\begin{tabular}[t]{|l|l|l|} \hline Attribute & element & Values \\ \hline action & dc:date & unspecified \\ \hline & \multicolumn{2}{|l|}{specifies the action taken on the document on this date.} \\ \hline action & omlet & execute, display, other \\ \hline & \multicolumn{2}{|c|}{specifies the action to be taken when executing the omlet, the value is application-defined.} \\ \hline actuate & omlet & onPresent, onLoad, onRequest, other \\ \hline & \multicolumn{2}{|l|}{specifies the timing of the action specified in the action attribute} \\ \hline assertion & example & \\ \hline & \multicolumn{2}{|c|}{specifies the assertion that states that the objects given in the example really have the expected properties.} \\ \hline assertion & obligation & \\ \hline & \multicolumn{2}{|c|}{specifies the assertion that states that the translation of the statement in the source theory specified by the induced-by attribute is valid in the target theory.} \\ \hline attributes & use & \\ \hline & \multicolumn{2}{|c|}{the attribute string for the start tag of the XML element substituted for the brackets (this is specified in the element attribute).} \\ \hline attribution & cc:requirements & required, not_required \\ \hline & \multicolumn{2}{|c|}{Specifies whether the copyright holder/author must be given credit in derivative works} \\ \hline base & morphism & \\ \hline & \multicolumn{2}{|c|}{specifies another morphism that should be used as a base for expansion in the definition of this morphism} \\ \hline bracket-style & presentation, use & lisp, math \\ \hline & & specifies whether a function application is of the form \(f(a, b) \) or (\(f a b\)) \\ \hline cd & om: 0MS & \\ \hline & & specifies the content dictionary of an OpenMath symbol \\ \hline cd & term & \\ \hline & specifies the content dictionary of a technical term & \\ \hline cdbase & om:* & \\ \hline & specifies the base URI of the content dictionaries used in an OpenMath object & \\ \hline cdreviewdate & theory & \\ \hline & specifies the date until which the content dictionary will remain unchanged & \\ \hline cdrevision & theory & \\ \hline & specifies the minor version number of the content dictionary & \\ \hline cdstatus & theory & official, experimental, private, obsolete \\ \hline & specifies the content dictionary status & \\ \hline cdurl & theory & \\ \hline & the main URL, where the newest version of the content dictionary can be found & \\	*(not rendered)*		

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_099	339	■ 0.420	\begin{tabular}[t]{|l|l|l|l|} \hline cdversion & theory & \\ \hline & \multicolumn{2}{|l|}{specifies the major version number of the content dictionary} \\ \hline comment & ignore & \\ \hline & specifies a reason why we want to ignore the contents & \\ \hline crossref-symbol & presentation, use & all, brackets, lbrack, no, rbrack, separator, yes \\ \hline & \multicolumn{2}{|c|}{specifies whether cross-references to the symbol definition should be generated in the output format.} \\ \hline class & * & \\ \hline & specifies the CSS class & \\ \hline commercial_use & cc:permissions & permitted, prohibited \\ \hline & \multicolumn{2}{|c|}{specifies, whether commercial use of the document with this license is permitted} \\ \hline consistency & morphism, definition & OMDoc reference \\ \hline & \multicolumn{2}{|c|}{points to an assertion stating that the cases are consistent, i.e. that they give the same values, where they overlap} \\ \hline copyleft & cc:restrictions & required, not_required \\ \hline & \multicolumn{2}{|c|}{specifies whether derived works must be licensed with the same license as the current document.} \\ \hline cr & element & yes/no \\ \hline & \multicolumn{2}{|c|}{specifies	*(not rendered)*	

cdversion	theory	
	specifies the major version number of the content dictionary	
comment	ignore	
	specifies a reason why we want to ignore the contents	
crossref-symbol	presentation, use	all, brackets, lbrack, no, rbrack, separator, yes
	specifies whether cross-references to the symbol definition should be generated in the output format.	
class	*	
	specifies the CSS class	
commercial_use	cc:permissions	permitted, prohibited
	specifies, whether commercial use of the document with this license is permitted	
consistency	morphism, definition	OMDoc reference
	points to an assertion stating that the cases are consistent, i.e. that they give the same values, where they overlap	
copyleft	cc:restrictions	required, not_required
	specifies whether derived works must be licensed with the same license as the current document.	
cr	element	yes/no
	specifies whether an xlink:href cross-reference should be set on the result element.	
cref	om:*	URI reference
	extra attribute for cross-references in parallel markup	
crid	element	XPATH expression
	the path to the sub-element that corresponds to the result element.	
crossref-symbol	presentation, use	no, yes, brackets, separator, lbrack, rbrack, all
	specifies which generated presentation elements should carry cross-references to the definition.	
data	omlet	
	points to a private element that contains the data for this omlet	
definitionURL	m:*	URI
	points to the definition of a mathematical concept	
derivative_works	cc:permissions	permitted, not_permitted
	specifies whether the document may be used for making derivative works.	
distribution	cc:permissions	permitted,not_permitted
	specifies whether distribution of the current document fragment is permitted.	
element	use	
	the XML element tags to be substituted for the brackets.	
element	omstyle	
	the XML element, the presentation information contained in the omstyle element should be applied to.	
encoding	m:annotation,om:OMFOREIGN	MIME type of the content
	specifies the format of the content	
entails, entailed-by	alternative	
	specifies the equivalent formulations of a definition or axiom	
entails-thm, entailed-by-thm	alternative	
	specifies the entailment statements for equivalent formulations of a definition or axiom	
exhaustivity	morphism, definition	OMDoc reference
	points to an assertion that states that the cases are exhaustive.	
existence	definition	OMDoc reference
	points to an assertion that states that the symbol described in an implicit definition exists	
fixity	presentation	assoc, infix, postfix, prefix
	specifies where the function symbol-of a function application should be displayed in the output format	
function	omlet	

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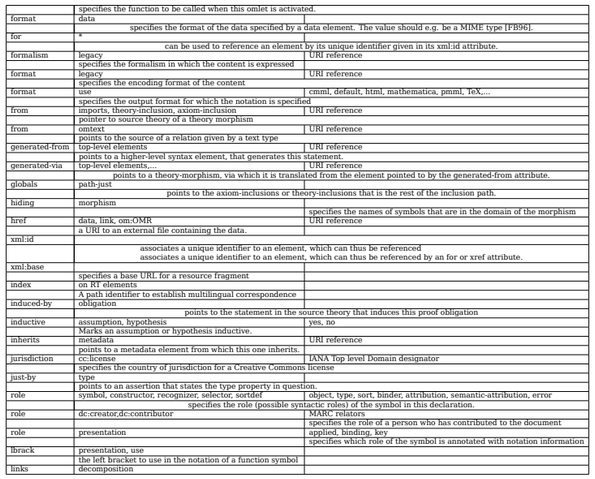
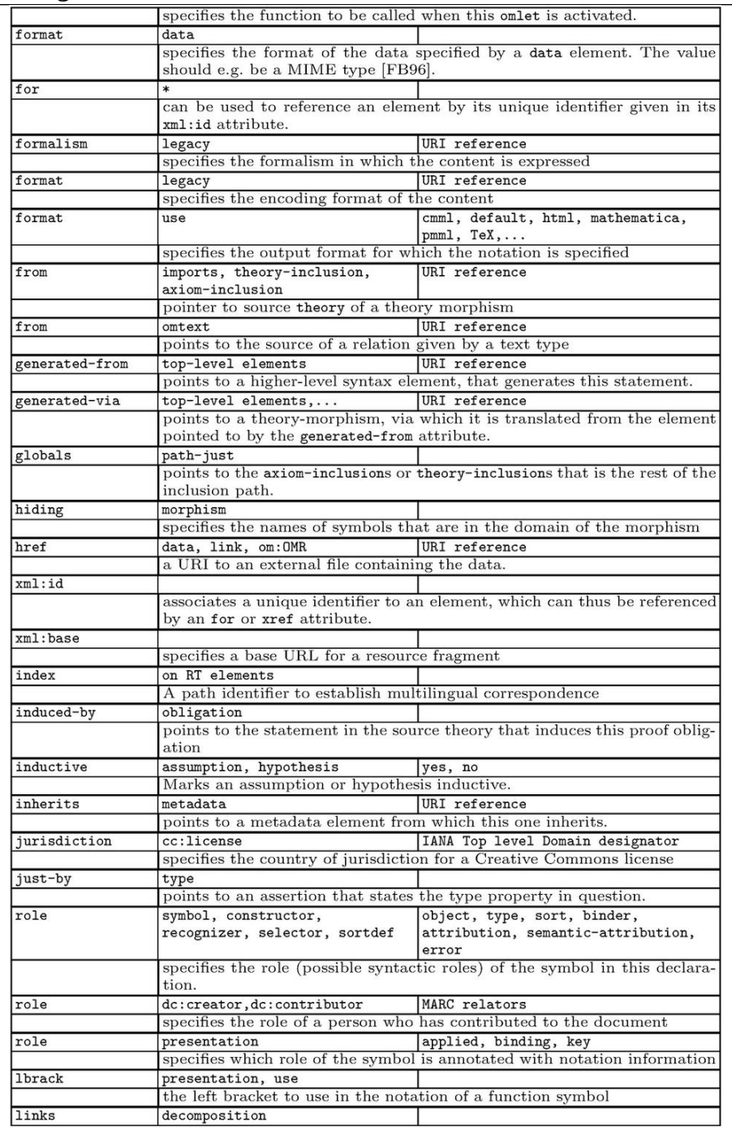
kohlhase-omdoc_TAB_100	340	0.938	\begin{tabular}[t]{|l|l|l|} \hline & \multicolumn{2}{|l|}{specifies the function to be called when this omlet is activated.} \\ \hline format & data & \\ \hline & \multicolumn{2}{|c|}{specifies the format of the data specified by a data element. The value should e.g. be a MIME type [FB96].} \\ \hline for & * & \\ \hline & \multicolumn{2}{|c|}{can be used to reference an element by its unique identifier given in its xml:id attribute.} \\ \hline formalism & legacy & URI reference \\ \hline & specifies the formalism in which the content is expressed & \\ \hline format & legacy & URI reference \\ \hline & specifies the encoding format of the content & \\ \hline format & use & cmml, default, html, mathematica, pmml, TeX,... \\ \hline & specifies the output format for which the notation is specified & \\ \hline from & imports, theory-inclusion, axiom-inclusion & URI reference \\ \hline & pointer to source theory of a theory morphism & \\ \hline from & omtext & URI reference \\ \hline & points to the source of a relation given by a text type & \\ \hline generated-from & top-level elements & URI reference \\ \hline & points to a higher-level syntax element, that generates this statement. & \\ \hline generated-via & top-level elements,... & URI reference \\ \hline & points to a theory-morphism, via which it is translated from the element pointed to by the generated-from attribute. & \\ \hline globals & path-just & \\ \hline & points to the axiom-inclusions or theory-inclusions that is the rest of the inclusion path. & \\ \hline hiding & morphism & \\ \hline & specifies the names of symbols that are in the domain of the morphism & \\ \hline href & data, link, om:OMR & URI reference \\ \hline & a URI to an external file containing the data. & \\ \hline xml:id & & \\ \hline & associates a unique identifier to an element, which can thus be referenced by an for or xref attribute. & \\ \hline xml:base & & \\ \hline & specifies a base URL for a resource fragment & \\ \hline index & on RT elements & \\ \hline & A path identifier to establish multilingual correspondence & \\ \hline induced-by & obligation & \\ \hline & points to the statement in the source theory that induces this proof obligation & \\ \hline inductive & assumption, hypothesis & yes, no \\ \hline & Marks an assumption or hypothesis inductive. & \\ \hline inherits & metadata & URI reference \\ \hline & points to a metadata element from which this one inherits. & \\ \hline jurisdiction & cc:license & IANA Top level Domain designator \\ \hline & specifies the country of jurisdiction for a Creative Commons license & \\ \hline just-by & type & \\ \hline & points to an assertion that states the type property in question. & \\ \hline role & symbol, constructor, recognizer, selector, sortdef & object, type, sort, binder, attribution, semantic-attribution, error \\ \hline & specifies the role (possible syntactic roles) of the symbol in this declaration. & \\ \hline role & dc:creator,dc:contributor & MARC relators \\ \hline & specifies the role of a person who has contributed to the document & \\ \hline role & presentation & applied, binding, key \\ \hline & specifies which role of the symbol is annotated with notation information & \\ \hline lbrack & presentation, use & \\ \hline & the left bracket to use in the notation of a function symbol & \\ \hline links & decomposition & \\ \hline		

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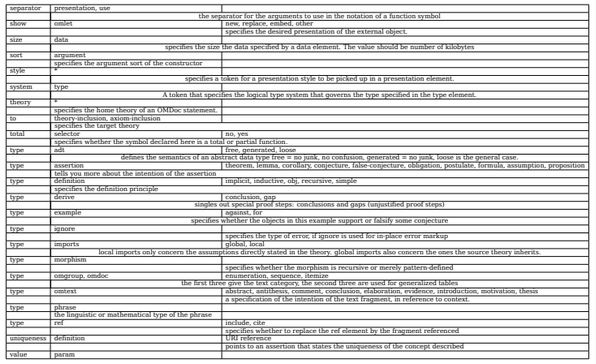
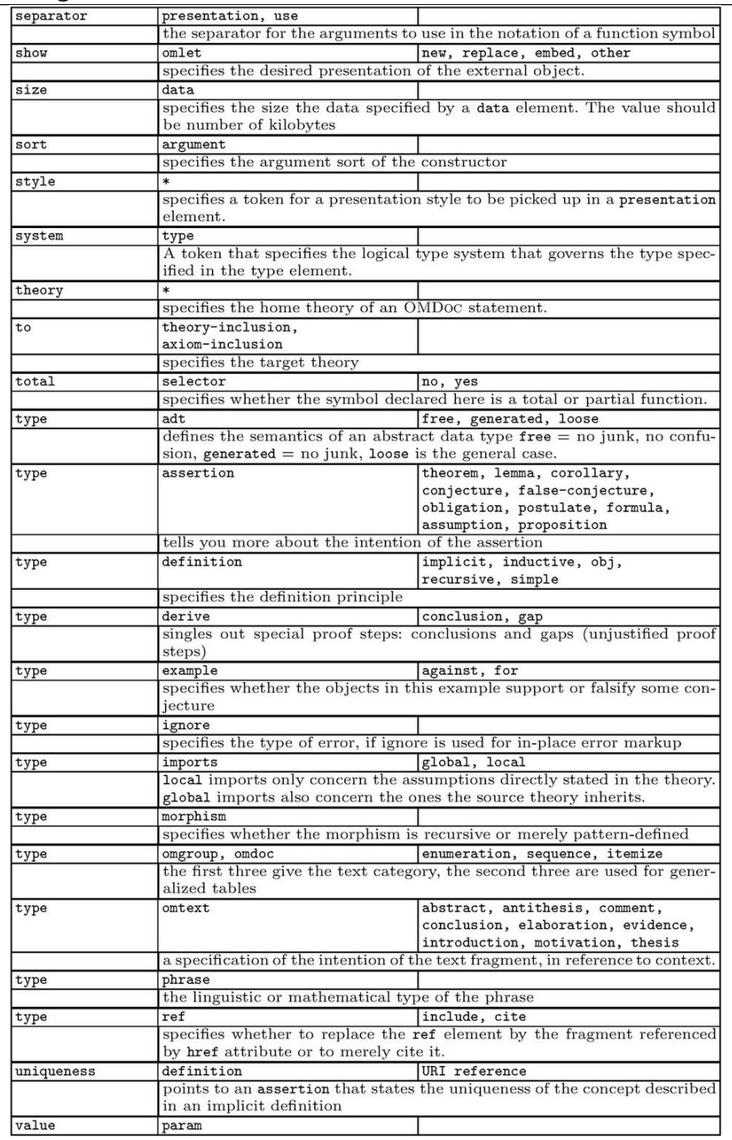
kohlhase-omdoc_TAB_101	341	0.692	\begin{tabular}[t]{|l|l|l|} \hline & \multicolumn{2}{|c|}{specifies a list of theory- or axiom-inclusions that justify (by decomposition) the theory-inclusion specified in the for attribute.} \\ \hline local & path-just & \\ \hline & points to the axiom-inclusion that is the first element in the path. & \\ \hline logic & FMP & token \\ \hline & specifies the logical system used to encode the property. & \\ \hline modules & omdoc, omgroup & module and sub-language shorthands, URI reference \\ \hline & \multicolumn{2}{|c|}{specifies the modules or OMDoc sub-language used in this document fragment} \\ \hline name & om:OMS, om:OMV, symbol, term & \\ \hline & & the name of a concept referenced by a symbol, variable, or technical term. \\ \hline name & attribute, element & \\ \hline & the local name of generated element. & \\ \hline name & param & \\ \hline & \multicolumn{2}{|l|}{the name of a parameter for an external object.} \\ \hline notice & cc:requirements & required, not_required \\ \hline & \multicolumn{2}{|c|}{specifies whether copyright and license notices must be kept intact in distributed copies of this document} \\ \hline ns &	*(not rendered)*		

	specifies a list of theory- or axiom-inclusions that justify (by decomposition) the theory-inclusion specified in the for attribute.	
local	path-just	
	points to the axiom-inclusion that is the first element in the path.	
logic	FMP	token
	specifies the logical system used to encode the property.	
modules	omdoc, omgroup	module and sub-language shorthands, URI reference
	specifies the modules or OMDoc sub-language used in this document fragment	
name	om:OMS, om:OMV, symbol, term	
	the name of a concept referenced by a symbol, variable, or technical term.	
name	attribute, element	
	the local name of generated element.	
name	param	
	the name of a parameter for an external object.	
notice	cc:requirements	required, not_required
	specifies whether copyright and license notices must be kept intact in distributed copies of this document	
ns	element, attribute	URI
	specifies the namespace URI of the generated element or attribute node	
original	data	local, external
	specifies whether the local copy in the data element is the original or the external resource pointed to by the href attribute.	
parameters	adt	
	The list of formal parameters of a higher-order abstract data type	
precedence	presentation	
	the precedence of a function symbol (for elision of brackets)	
proofs	assertion	
	specifies a list of URIs to proofs of this assertion.	
pto, pto-version	private, code	
	specifies the system and its version this data or code is private to	
rank	premise	
	specifies the rank (importance) of a premise	
rbrack	presentation, use	
	the right bracket to use in the notation of a function symbol	
reformulates	private	
	points to a set of elements whose content is reformulated by the content of the private element for the system.	
reproduction	cc:permissions	permitted,not_permitted
	specifies whether reproduction of the current document fragment is permitted by the licensor	
requires	private, code, use, xslt, style	URI reference
	points to a code element that is needed for the execution of this data by the system.	
role	dc:creator, dc:collaborator	aft, ant, aqt, aui, aut, clb, edt, ths, trc, trl
	the MARC relator code for the contribution of the individual.	
role	phrase, term	
	the role of the phrase annotation	
role	presentation	applied, binding, key
	specifies for which role (as the head of a function application, as a binding symbol, or as a key in a attribution, or as a stand-alone symbol (the default)) of the symbol presentation is intended	
scope	dc:identifier	scheme name
	specifies the identification scheme (e.g. ISBN) of a resource	
scope	symbol	global, local
	specifies the visibility of the symbol declared. This is a very crude specification, it is better to use theories and importing to specify symbol accessibility.	
select	map, recurse, value-of	XPATH expression
	specifies the path to the sub-expression to act on	

Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_102	342	0.999	\begin{tabular}[t]{|l|l|l|} \hline separator & presentation, use & \\ \hline & \multicolumn{2}{|c|}{the separator for the arguments to use in the notation of a function symbol} \\ \hline show & omlet & new, replace, embed, other \\ \hline & & specifies the desired presentation of the external object. \\ \hline size & data & \\ \hline & \multicolumn{2}{|c|}{specifies the size the data specified by a data element. The value should be number of kilobytes} \\ \hline sort & argument & \\ \hline & specifies the argument sort of the constructor & \\ \hline style & * & \\ \hline & \multicolumn{2}{|c|}{specifies a token for a presentation style to be picked up in a presentation element.} \\ \hline system & type & \\ \hline & \multicolumn{2}{|c|}{A token that specifies the logical type system that governs the type specified in the type element.} \\ \hline theory & * & \\ \hline & specifies the home theory of an OMDoc statement. & \\ \hline to & theory-inclusion, axiom-inclusion & \\ \hline & specifies the target theory & \\ \hline total & selector & no, yes \\ \hline & specifies whether the symbol declared here is a total or partial function. & \\ \hline type		

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Identifier	Page	Conf.	LaTeX source	Rendered	Image
kohlhase-omdoc_TAB_103	343	0.993	\begin{tabular}[t]{|l|l|l|} \hline & \multicolumn{2}{|l|}{specifies the value of the parameter} \\ \hline valuetype & param & \\ \hline & specifies the type of the value of the parameter & \\ \hline verbalizes & on RT elements & URI references \\ \hline & \multicolumn{2}{|c|}{contains a whitespace-separated list of pointers to OMDoc elements that are verbalized} \\ \hline verdict & answer & \\ \hline & \multicolumn{2}{|c|}{specifies the truth or falsity of the answer. This can be used e.g. by a grading application.} \\ \hline version & omdoc & 1.2 \\ \hline & \multicolumn{2}{|l|}{specifies the version of the document, so that the right DTD is used} \\ \hline version & cc:license & \\ \hline & \multicolumn{2}{|c|}{specifies the version of the Creative Commons license that applies, if not present, the newest one is assumed} \\ \hline via & inclusion & \\ \hline & & points to a theory-inclusion that is required for an actualization \\ \hline who & dc:date & \\ \hline & \multicolumn{2}{|l|}{specifies who acted on the document fragment} \\ \hline xml:lang & CMP, dc:* & ISO 639 code \\ \hline & \multicolumn{2}{|l|}{the language the text in the element is expressed in.} \\ \hline xml:lang & use, xslt, style & whitespace-separated list of ISO 639 codes \\ \hline & \multicolumn{2}{|l|}{specifies for which language the notation is meant} \\ \hline xlink:* & om:OMR, m:* & URI reference \\ \hline & \multicolumn{2}{|l|}{specify the link behavior on the elements} \\ \hline xref & ref, method, premise & URI reference \\ \hline & \multicolumn{2}{|l|}{Identifies the resource in question} \\ \hline xref & presentation, omstyle & URI reference \\ \hline & \multicolumn{2}{|c|}{The element, this URI points to should be in the place of the object containing this attribute.} \\ \hline \end{tabular}	specifies the value of the parameter valuetype param specifies the type of the value of the parameter verbalizes on RT elements URI references contains a whitespace-separated list of pointers to OMDoc elements that are verbalized verdict answer specifies the truth or falsity of the answer. This can be used e.g. by a grading application. version omdoc 1.2 specifies the version of the document, so that the right DTD is used version cc:license specifies the version of the Creative Commons license that applies, if not present, the newest one is assumed via inclusion points to a theory-inclusion that is required for an actualization who dc:date specifies who acted on the document fragment xml:lang CMP, dc:* ISO 639 code the language the text in the element is expressed in. xml:lang use, xslt, style whitespace-separated list of ISO 639 codes specifies for which language the notation is meant xlink:* om:OMR, m:* URI reference specify the link behavior on the elements xref ref, method, premise URI reference Identifies the resource in question xref presentation, omstyle URI reference The element, this URI points to should be in the place of the object containing this attribute.	specifies the value of the parameter valuetype param specifies the type of the value of the parameter verbalizes on RT elements URI references contains a whitespace-separated list of pointers to OMDoc elements that are verbalized verdict answer specifies the truth or falsity of the answer. This can be used e.g. by a grading application. version omdoc 1.2 specifies the version of the document, so that the right DTD is used version cc:license specifies the version of the Creative Commons license that applies, if not present, the newest one is assumed via inclusion points to a theory-inclusion that is required for an actualization who dc:date specifies who acted on the document fragment xml:lang CMP, dc:* ISO 639 code the language the text in the element is expressed in. xml:lang use, xslt, style whitespace-separated list of ISO 639 codes specifies for which language the notation is meant xlink:* om:OMR, m:* URI reference specify the link behavior on the elements xref ref, method, premise URI reference Identifies the resource in question xref presentation, omstyle URI reference The element, this URI points to should be in the place of the object containing this attribute.