Errata to the OMDoc 1.2 Specification

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Abstract

This document tracks the errata in the OMDoc 1.2 specification (Springer LNAI 4180). We will keep a corrected version available at https://svn.omdoc.org/repos/omdoc/branches/omdoc-1.2/doc/spec/spec.pdf.

1 Introduction

The OMDoc (Open Mathematical Documents) format is a content markup scheme for (collections of) mathematical documents including articles, textbooks, interactive books, and courses. OMDoc also serves as the content language for agent communication of mathematical services on a mathematical software bus. The format features a modularized language design, OpenMath and MathML for representing mathematical objects, and has been employed and validated in various applications.

The OMDoc 1.2 specification has been released as volume 4180 in the Springer Lecture Notes on Artificial Intelligence (LNAI) series. As with any release, the release of the specification has brought wider use and this flushes out bugs that went unnoticed before. These bugs (called errata for paper documents) are tracked in this document, whose newest version can be found at https://svn.omdoc.org/repos/omdoc/branches/omdoc-1.2/doc/spec/errata.pdf. A version of the OMDoc specification that contains all errata corrections (and markup of what changed) can be found at https://svn.omdoc.org/repos/omdoc/branches/omdoc-1.2/doc/spec/spec.pdf.

In the following we will tabulate the errata in document order. Their location will be referenced by the section they appear in rather than the page number, since we do not expect the former to change in the errata correction process.

2 The Errata

4.2 wrong reference

4.2 wrong cross-reference for “line 16”

4.3 `for` attribute on `definition` should be of type `NCNames`

4.3 should be ”definiendum” not ”definiens”

4.3 should be definiendum-applied not definiens-applied

4.4 `for` attribute on `definition` should be of type `NCNames`

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4.4 should be ”definiendum” not ”definiens”

5. `for` attribute on `definition` should be of type `NCNames`

6. `for` attribute on `definition` should be of type `NCNames`

6. `for` attribute on `definition` should be of type `NCNames`

7. `for` attribute on `definition` should be of type `NCNames`

7. `for` attribute on `definition` should be of type `NCNames`

7. `for` attribute on `definition` should be of type `NCNames`, totally reworked example

8.1 `for` attribute on `axiom` should be of type `NCNames`

8.1 `for` attribute on `definition` should be of type `NCNames`

8.1 forgot to thread through attribute renaming

8.1 The attribute on the `assertion` element should be `just-by`, not `proofs`. We were also missing some fragment identifiers.

11.1 Typo: “Backus Naur form” instead of “Bachus Naur Form”

11.1 ref does permit an xml:id attribute (and this should remain, as that is important for talking about refs from an RDF point of view)

11.1 omdoc and omgroup can have an optional theory attribute as well

11.2 RDF as a general data model is independent from XML; RDF/XML is just one of its possible serializations.

11.2 correct name

12. The content Model for `dc:creator` and `cd:contributor` is simple text

12.1 wrong attribute name

12.4 `for` attribute on `definition` should be of type `NCNames`

13.1.1 It should be made clear that this inheritance mechanism is extended by the OMDoc format. See section **3.1** of the errata document for details

14. added the attribute xml:id to the `CMP` element; added the attribute from to the `omtext` element

14. added the attribute cdbase to the `term` element

14.1 should be "definiendum" not "definiens"

14.3 `note`

14.3 omtext can also be an assumption, obligation or rule as all of these can be expressed in informal as well as formal way

14.3 And there should also be ¡omtext type=“assertion”¿ for generic assertions, corresponding to the ¡assertion¿ element without a type.

14.5 also need `cdbase` for identifying

14.5 Should be Deffiniendum instead of deffiniens

14.5 should be "definiendum" not "definiens"

14.6 the index attribute should be optional

15.1 “Definiendum” and “Definiens” should switched

15.2.1 scope is deprecated

15.2.2 the `for` attribute in the `axiom` element must reference symbol names

15.2.2 `for` attribute on `axiom` should be of type `NCNames`

15.2.3 examples reference wrong listings

15.2.4 Note that this use of the `for` attribute is different from the other usages, which are URI references.

15.2.4 `for` attribute on `definition` should be of type `NCNames`, also corrected cd attribute.

15.2.4 `for` attribute on `definition` should be of type `NCNames`

15.2.4 `for` attribute on `definition` should be of type `NCNames`

15.3 deleted spurious `for` attribute on the `assertion` element, `alternative` should have the same content as definition

15.3.2 `for` attribute on `definition` should be of type `NCNames`

15.3.3 fixed the target of the for attribute

15.4 added the `axiom` element to the list; cf. discussion on `omdoc-dev` on May 16, 2008

15.4 added the `alternative` element to the list

15.4 `for` attribute on `definition` should be of type `NCNames`

15.5 `for` attribute on `definition` should be of type `NCNames`

15.5 should be "definendum" not "definiens"

15.5 `for` attribute on `definition` should be of type `NCNames`

15.5 should be "definiendum" not "definiens"

15.6 the `xml:id` attribute on the `theory` element should be optional

15.6.1 The symbol name `af` should be `aa`

15.6.1 `for` attribute on `definition` should be of type `NCNames`

15.6.1 `for` attribute on `definition` should be of type `NCNames`

15.6.2 This specification of the inheritance mechanism is to wishy washy. See section **3.1** of the errata document for a clarification.

16..2 The `for` attribute contains a URI reference according to the RelaxNG schema; the locality restriction here contradicts that and needs to be removed.

17.1 `for` attribute on `definition` should be of type `NCNames`

17.1 made the for attribute in the `proofobject` element required; added the rank attribute to the `premise` element

17.2 `for` attribute on `definition` should be of type `NCNames`

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17.3 `for` attribute on `definition` should be of type `NCNames`

17.4 `for` attribute on `definition` should be of type `NCNames`

18. changed the order of type and hiding attributes in the `morphism` element; removed the consistency and consistency-just attributes from the `morphism`, `inclusion`, `theory-inclusion`, and `axiom-inclusion` elements; changed the contents of the `theory-inclusion` element to (morphism?, obligation*); changed the contents of the `morphism` element to (requation+, measure?, ordering?); added the element `obligation`

18.1 noted special case

18.1 Clarified wording

18.2 added missing word

18.2 Fixed value of the `conservativity` attribute

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18.5.2 added the optional for attribute for the decomposition element; removed the by attribute from the `theory-inclusion` element; changed the contents of the `theory-inclusion` element to (morphism?, (decomposition* — obligation*))

19..2 added CMP* to content of `presentation` element

19.4 The `for` attribute should be `#X4` instead of `#X` in listings 19.5 and 19.6

20.1 The reference `reformulates="ALGX0"` should be a URI reference, i.e. `#ALGX0`

20.2 Wrong Content Model for `omlet`

22.1 `for` attribute on `definition` should be of type `NCNames`

22.1 `for` attribute on `definition` should be of type `NCNames`

22.2 `for` attribute on `definition` should be of type `NCNames`

26.4 reference to QED

26.15 The domain is `kwarc.eecs.iu-bremen.de`

26.15.4 correct example given

1.1 the old `extradata` content has nothing to do with `dc:subject`

4.4 The `type` attributes on `phrase` and `omtext` were not conforming to the spec

4.4 attribute value `trasition` forgotten from rnc

4.4 the `verbalizes` attribute had been forgotten for the `phrase` element

4.7 simple definitions should not have an `existence` attribute, furthermore pattern definitions should not have `measure` and `ordering` children

4.7 the `type` element needs to allow a `for` attribute

4.7 the `tgroup` element should not contain `omgroup` children

4.10 The DG module RelaxNG schema had been forgotten

4.13 we have to allow the `metadata` element in `omlet`

3 Clarifications

3.1 The `cdbase` Attribute in OpenMath and OMDoc

In section **13.1.1** we recap the usage of the `cdbase` attribute on OpenMath objects as a device to "disambiguate content dictionaries". In particular, `cdbase` attributes on `om:OMS` elements can be elided when they can be inherited from parent elements.

In section **15.6.2** we very briefly discuss another space-saving inheritance rule for `cdbse` attributes: `cdbse` attributes can be inherited from `imports` elements.

As recent misunderstandings in an implementation show, this inheritance mechanism needs clarification.

The general background of this is that on the one hand an OpenMath symbol (encoded as an `om:OMS` element) is fully identified by a triple: the content dictionary base, the content dictionary, and the name of the symbol. On the other hand, OMDoc specifies that the visibility of symbols in OMDoc documents is governed by theories (the OMDoc counterparts of content dictionaries): a symbol can only be used in a context that imports the symbol's home theory. Thus we can use the theory context to disambiguate theories of symbols and no `om:OMS` element in an OMDoc document needs to carry an explicit `cdbase` attribute.

To compute the content dictionary base of a symbol, we must fist compute its theory context, which is a partial function from theory names to URIs given by the following set of rules:

1. The `immediate theory context` of a theory consists of the theory name (given in the `xml:id` attribute on the `theory` element) its base URI (as defined in [BLFM05, section 5.1]).

2. Let T be a theory that imports theories $S_1, \ldots, S_n$. Furthermore let σ_i be the theory context of the theories S_i, ι the immediate theory context of T and π the theory context the parent theory of T if it exists, else $\emptyset$. Then the `theory context` θ of T is defined by $\theta := \pi \cup \iota \cup \sigma_1 \cup \ldots \cup \sigma_n$, where $\cup$ is the union of partial functions. Note that we take $\cup$ to be commutative by making it undefined, if its arguments contradict each other.

With this we can define content dictionary base of a symbol s with name n

1. If T is the nearest `theory` ancestor of s and T has theory context θ, then the content dictionary base of s is $\theta(n)$.

2. If s is not contained in a theory and T is the theory referenced by the nearest ancestor element of s with a `theory` attribute and θ is the theory context of that, then the content dictionary base of s is $\theta(n)$ — which may be undefined if θ does not supply a content dictionary base for n.

3. Otherwise the content dictionary base of s is undefined.

We call an OMDoc document o **well-scoped**, iff for any symbol s in o, the content dictionary base is defined. We require that any OMDoc document is well-scoped. In particular, an OMDoc application should issue an error, if it reads a document that is not well-scoped.

References

[BLFM05] Tim Berners-Lee, Roy. Fielding, and L. Masinter. Uniform resource identifier (URI): Generic syntax. RFC 3986, Internt Engineering Task Force, 2005.