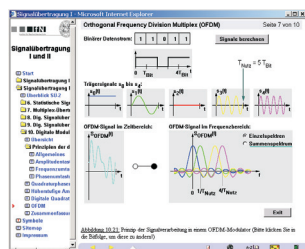
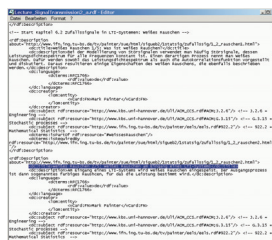


Completing LOM - How Additional Axioms Increase the Usability of Learning Objects Metadata

Present: New applications (e.g. LMSs, Edutella) need a comprehensive description of e-Learning resources with metadata to access these resources



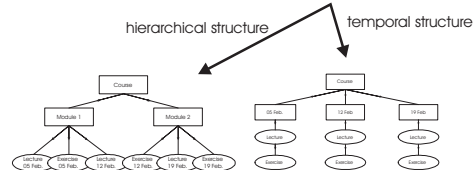
DC LOM
RDF



Entering metadata using Notepad (?)

Drawbacks:

- Lack of sophisticated metadata tools
- Tedious and annoying method
- Error-prone
- Time-consuming
- Semantics of metadata elements not clearly defined (example: lom:hasPart)



Our Approach: Support the authoring of metadata using inference rules

Metadata for the Course metadata

Course description:

URL:

Title:

Creator:

Date:

Description:

Chapters:

Chapter 1

Title:

Learning resources:

Resource 1

partOf:

URL:

Title:

Format:

Description:

Language:

Subject1:

Subject2:

Subject3:

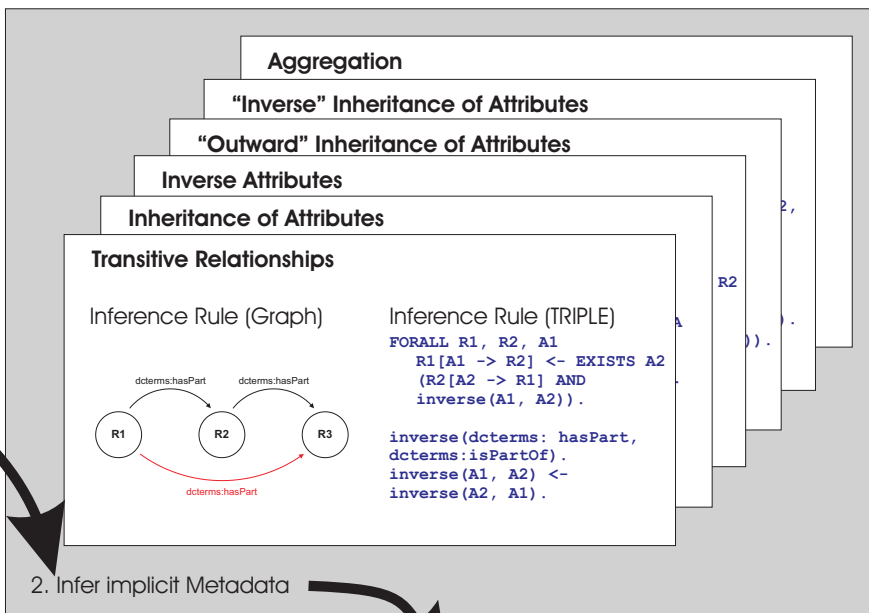
Prerequisites1:

Prerequisites2:

Prerequisites3:

Create RDF!

1. Enter Metadata



Advantages:

- Only selected metadata elements need to be entered
- No implicit metadata to be entered
- Less error during entering
- Rules can also be used for searching purposes
- Rules as Integrity Constraints

RDF-File (excerpt)

```
<rdf:Description about="http://www.ifn.ing.tu-bs.de/tv/painter/sue/html/sigueb2/5digmod/5_1prinzipien/5_1psk5.html">
  <dc:title>Phasenumtastung (PSK) Seite 5/6: Bitfehlerwahrscheinlichkeit</dc:title>
  <dc:description>Die Beziehung zur Berechnung der Bitfehlerwahrscheinlichkeit wird angegeben und kurz erläutert.</dc:description>
  <dc:language>
    <dcterms:RFC1766>
      <rdf:value>de</rdf:value>
    </dcterms:RFC1766>
  </dc:language>
  <dc:creator>
    <lom:entity>
      <vCard:FN>Mark Painter</vCard:FN>
    </lom:entity>
  </dc:creator>
  <dc:subject rdf:resource="http://www.kbs.uni-hannover.de/Uli/ACM_CCS.rdf#ACM:B.4.1.1"/> <!-- B.4.1.1 = Receivers (e.g., voice, data, image) -->
  <dc:subject rdf:resource="http://www.ifn.ing.tu-bs.de/tv/painter/eels/eels.rdf#722.3"/> <!-- 722.3 = Data Communication (Equipment and Techniques) -->
  <dcterms:isPartOf rdf:resource="#Kapitel_10_1_4PSK"/>
  <dcterms:isRequiredBy rdf:resource="http://www.ifn.ing.tu-bs.de/tv/painter/sue/html/sigueb2/5digmod/5_1prinzipien/5_1psk6.html"/>
  <dcterms:requires rdf:resource="http://www.ifn.ing.tu-bs.de/tv/painter/sue/html/sigueb2/5digmod/5_1prinzipien/5_1psk4.html"/>
</rdf:Description>
```

3. Get comprehensive RDF Description

Links to resources

- Course Signal transmission: <http://www.ifn.ing.tu-bs.de/sue/>
- Course Artificial Intelligence: <http://www.kbs.uni-hannover.de/lehre/KI1/WS02>
- Paper: http://www.kbs.uni-hannover.de/Arbeiten/Publikationen/2003/iswc03_long.pdf
- TRIPLE: <http://triple.semanticweb.org>