

IAML - Xml and semantic web

IAML - IT Committee

Périgueux, 10 July 2001

Semantic web and the librarian:

XML Schemas as a future way of cataloguing?

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Concepts:

- A natural language is based on a vocabulary and a series of rules so to compose phrases; XML applies the same scheme.
- Unlike HTML, XML is a meta-language that is able to define other markup languages. It extends HTML.
- DTDs (Document type Declaration) are documents or markup strings describing the syntax and characteristics of markups defining an XML language, but are not sufficient to specify the exact format of a string or other rules.
- Thus, XML Schema was created, where an XML document is intended as an instance of a class of documents using a particular vocabulary and syntax.
- In XML markups define the **content** of a text, not its **appearance**.
e.g.
<residence>
<street>via dei Pergolesi</street>
<number>14</number>
<city>Monte Caprifoglio</city>
<zip>46901</zip>
<province>PB</province>
</residence>
- Another language (XSL - eXtended Stylesheet Language or better XSLT - eXtended Stylesheet Language: Transformations) will define the appearance of every portion of the text.

Basic components:

Processing instructions begin with <? (e.g. <?xml version="1.0"?>)

Declarations begin with <! (e.g. <![CDATA[<greeting>Hello, world!</greeting>]]>)

Components like definitions or declarations begin with <xsd:

- Primary components are defined with <xsd: = Xml-Schema Definition:

<xsd:simpleType - Definition of simple type, (e.g. <xsd:simpleType name="ISBN-type">)

<xsd:complexType - Definition of complex type, based on combinations of attributes and elements

(e.g. <xsd:complexType name="BookPublication">)

<xsd:attribute - Declaration of attribute associated with an element

(e.g. <xsd:attribute ref="Category" use="required"/>)

<xsd:element - Declaration of an element (local or global) (e.g. <xsd:element name="BookCatalogue">)

- Other components are:

Annotations for humans or machines (<xsd:annotation, <xsd:documentation, <xsd:appinfo)

Models to define combinations used in groups or complex types

<xsd:all = all elements have to be present

<xsd:choice = one of the elements has to be present

<xsd:sequence = the elements have to be present in a fixed order

Substitution elements based on namespace instead of declarations (<xsd:any, xsd:anyAttribute)

- It is thus possible to define in an extremely flexible way structures and trees like in databases
- XML Schemas are:
Data Model
With XML Schemas you specify how your XML data will be organized, and the datatypes of your data. That is, with XML Schemas you model how your data is to be represented in an instance document.
A Contract
Organizations agree to structure their XML documents in conformance with an XML Schema. Thus, the XML Schema acts as a contract between the organizations.
A rich source of metadata
An XML Schema document contains lots of data about the data in the XML instance documents, such as the datatype of the data, the data's range of values, how the data is related to another piece of data (parent/child, sibling relationship), i.e., XML Schemas contain metadata

Tutorials and examples:

A complete [XML Schema tutorial](http://www.xfront.com) by Roger L. Costello at the <http://www.xfront.com> website contains a full description of all the concepts of XML Schemas, and is perfectly suitable for librarians, containing also references to how to treat ISBN with XML Schemas. I thank the author for letting me present it at the IAML meeting.

Links:

XML (eXtensible Markup Language):

<http://www.w3.org/TR/REC-xml>

- XML Schema:

<http://www.w3.org/2001/XMLSchema>

<http://www.w3.org/TR/xmlschema-0/> (Primer)

<http://www.w3.org/TR/xmlschema-1/> (Structures)

<http://www.w3.org/TR/xmlschema-2/> (Datatypes)

XSL (eXtensible Stylesheet Language):

<http://www.w3.org/TR/xsl/>

- XSLT (eXtensible Stylesheet Language: Transformations):

<http://www.w3.org/TR/xslt>

RDDL (Resource Directory Description Language):

<http://www.rddl.org/>

MASTER:

<http://www.cta.dmu.ac.uk/projects/master/>

New events:

<http://www.wedelmusic.org/wedelmusic2001>