University of Crete

Dpt. of Computer Science

CS 566 - Internet Knowledge Management

BibTeX In OWL

BIBTEX

Kartsonakis Efthimis

Kriara Lito

Papadakis Giannis

Heraklion, 2008

Table of Contents

Introduction

BibTeX is a tool for formatting lists of references. The BibTeX tool is typically used together with the LaTeX document preparation system. Within the typesetting system, its name is styled as $\mathrm{B{\scriptstyle IB}T_{\!E}X}$.

BibTeX was created by Oren Patashnik and Leslie Lamport in 1985. BibTeX makes it easy to cite sources in a consistent manner, by separating bibliographic information from the presentation of this information. This same principle of separation of content and presentation/style is used by LaTeX itself.

BibTeX formats bibliographic items according to a style file, typically by generating TeX or LaTeX formatting commands. However, style files for generating HTML output also exist. BibTeX style files, for which the suffix .bst is common, are written in a simple, stack-based programming language that describes how bibliography items should be formatted.

Usage of BibTeX

Most journals or publishers that support LaTeX often have a customized bibliographic style file for the convenience of the authors. This ensures that the bibliographic style meets the guidelines of the publisher with minimal effort.

```
@Book{abramowitz+stegun,
 author =     "Milton Abramowitz and Irene A. Stegun",
 title =      "Handbook of Mathematical Functions with  Formulas, Graphs, and Mathematical Tables",
 publisher =  "Dover",
 year =       1964,
 address =    "New York",
 edition =    "ninth Dover printing, tenth GPO printing"
}
```

If a document references this handbook, the bibliographic information may be formatted in different ways depending on which citation style (APA, MLA, Chicago etc.) is employed. The way LaTeX deals with this is by specifying \cite commands and the desired bibliography style in the LaTeX document. If the command \cite{abramowitz+stegun} appears inside a LaTeX document, the BibTeX program will include this book in the list of references for the document and generate appropriate LaTeX formatting code. When viewing the formatted LaTeX document, the result might look like this:

Abramowitz, Milton and Irene A. Stegun (1964), Handbook of mathematical functions with formulas, graphs, and mathematical tables. New York: Dover.

Depending on the style file, BibTeX may rearrange authors' last names, change the case of titles, omit fields present in the .bib file, format text in italics, add punctuation, etc. Since the same style file is used for an entire list of references, these are all formatted consistently with minimal effort required from authors or editors.

```
@Book{hicks2001,
 author =     "von Hicks, III, Michael",
 title =      "Design of a Carbon Fiber Composite Grid Structure for the GLAST  Spacecraft Using a
Novel Manufacturing Technique",
 publisher =  "Stanford Press",
 year =       2001,
 address =    "Palo Alto",
 edition =    "1st,",
 isbn =       "0-69-697269-4"
}
```

```
@INPROCEEDINGS {author:06,
 title = {Some publication title},
 author = {First Author and Second Author},
 crossref = {conference:06},
 pages = {330--331},
}
```

```
@PROCEEDINGS {conference:06,
 editor = {First Editor and Second Editor},
 booktitle = {Proceedings of the Xth
Conference on XYZ},
 year = {2006},
 month = {October},
}
```

BibTeX Ontology

BibTeX ontology is a recasting of the BibTeX bibliographic markup language in OWL for use in RDF and semantic web applications. As the semantic web grows, there is the need for more and more formal ontology definitions in standard languages such as the Web Ontology Language (OWL) of the World Wide Web Consortium.

Classes and Properties

Nearly all of the classes and properties come directly from the BibTeX format document. There are a few additional properties and classes, some added to help organize BibTeX cardinality restrictions, others for ease-of-use. At the moment, BibTeX ontology is not standardized yet, so the fields are subject of change.

- Entry (Entry, Base class for all entries)
- Article (An article from a journal or magazine.)
    - ☐ #hasAuthor [1 +oo]
    - ☐ #hasTitle [1 +oo]
    - ☐ #hasJournal [1 +oo]
    - ☐ #hasYear [1 +oo]
- Book (A book with an explicit publisher.)
    - ☐ #humanCreator [1 +oo]
    - ☐ #hasTitle [1 +oo]
    - ☐ #hasPublisher [1 +oo]
    - ☐ #hasYear [1 +oo]
- Booklet (A work that is printed and bound, but without a named publisher or sponsoring institution.)
    - ☐ #hasTitle [1 +oo]
- Conference (Conference, The same as INPROCEEDINGS, included for Scribe compatibility.)
- Inbook (Inbook, A part of a book, which may be a chapter (or section or whatever) and/or a range of pages.)
    - ☐ #humanCreator [1 +oo]
    - ☐ #pageChapterData [1 +oo]
    - ☐ #hasTitle [1 +oo]
    - ☐ #hasPublisher [1 +oo]
    - ☐ #hasYear [1 +oo]
- Incollection (Incollection, A part of a book having its own title.)
    - ☐ #hasAuthor [1 +oo]
    - ☐ #hasTitle [1 +oo]
    - ☐ #hasBooktitle [1 +oo]
    - ☐ #hasPublisher [1 +oo]
    - ☐ #hasYear [1 +oo]
- Inproceedings (Inproceedings, An article in a conference proceedings.)
    - ☐ #hasAuthor [1 +oo]

- ☐ #hasTitle [1 +oo]
- ☐ #hasBooktitle [1 +oo]
- ☐ #hasYear [1 +oo]
- ■ Manual (Technical documentation.)
  - ☐ #hasTitle [1 +oo]
- ■ Mastersthesis (A Master's thesis.)
  - ☐ #hasAuthor [1 +oo]
  - ☐ #hasTitle [1 +oo]
  - ☐ #hasSchool [1 +oo]
  - ☐ #hasYear [1 +oo]
- ■ Misc (Use this type when nothing else fits.)
- ■ Phdthesis (A PhD thesis.)
  - ☐ #hasAuthor [1 +oo]
  - ☐ #hasTitle [1 +oo]
  - ☐ #hasSchool [1 +oo]
  - ☐ #hasYear [1 +oo]
- ■ Proceedings (The proceedings of a conference.)
  - ☐ #hasTitle [1 +oo]
  - ☐ #hasYear [1 +oo]
- ■ TechReport (A report published by a school or other institution, usually numbered within a series.)
  - ☐ #hasAuthor [1 +oo]
  - ☐ #hasTitle [1 +oo]
  - ☐ #hasInstitution [1 +oo]
  - ☐ #hasYear [1 +oo]
  - ☐ Unpublished (Unpublished, A document having an author and title, but not formally published.)
  - ☐ #hasAuthor [1 +oo]
  - ☐ #hasTitle [1 +oo]
  - ☐ #hasNote [1 +oo]

OWL

OWL-S is an ontology, within the OWL-based framework of the Semantic Web, for describing Semantic Web Services. It will enable users and software agents to automatically discover, invoke, compose, and monitor Web resources offering services, under specified constraints.

Both OWL-S and WSDL need to be used together to allow a full specification of grounding. Although both languages target at different levels of specification, there is an intersection between them:

- An OWL-S atomic process corresponds to a WSDL operation;
- The inputs and outputs of an OWL-S atomic process correspond to WSDL messages;

- The types of the inputs and outputs of an OWL-S atomic process correspond to WSDL abstract types.

Examples of Ontology

BibSonomy

BibSonomy is a social bookmarking and publication sharing system available at http://www.bibsonomy.org/. The system aims to integrate the features of bookmarking systems as well as team-oriented publication management. It offers users to store and organize their bookmarks and publication entries and supports the integration of different communities and people by offering a social platform for literature exchange.

Both bookmarks and publication entries can be provided with keywords (tags) to structure and refine information. As the descriptive terms can be freely chosen, the assignment of tags from different users creates a spontaneous, uncontrolled vocabulary: a folksonomy. In BibSonomy, the folksonomy evolves from the participation of research groups, learning communities and individual users, organizing their information needs.

Publication posts in BibSonomy are stored in the BibTeX format. However, export in other formats such as EndNote or HTML (e. g. for publication list creation) is possible. The service was developed by a team of students and scientists working at the Institute of Knowledge and Data Engineering [1] and is hosted by the University of Kassel.

Example

Search term: 'Author::Antoniou'

```xml
<?xml version="1.0" encoding="UTF-8"?>
        <!DOCTYPE rdf:RDF [
        <!ENTITY rdf 'http://www.w3.org/1999/02/22-rdf-syntax-ns#'>
        <!ENTITY rdfs 'http://www.w3.org/2000/01/rdf-schema#'>
        <!ENTITY swrc 'http://swrc.ontoware.org/ontology#'>
        <!ENTITY xsd 'http://www.w3.org/2001/XMLSchema#'>
]>

<rdf:RDF
        xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns="http://purl.org/rss/1.0/"
        xmlns:cc="http://web.resource.org/cc/"
        xmlns:taxo="http://purl.org/rss/1.0/modules/taxonomy/"
        xmlns:dc="http://purl.org/dc/elements/1.1/"
        xmlns:syn="http://purl.org/rss/1.0/modules/syndication/"
        xmlns:content="http://purl.org/rss/1.0/modules/content/"
        xmlns:admin="http://webns.net/mvcb/"
        xmlns:burst="http://xmlns.com/burst/0.1/"
        xmlns:rdfs="&rdfs;"
        xmlns:swrc="&swrc;"
```

```xml
                            xmlns:xsd="&xsd;"
>

<channel rdf:about="http://www.bibsonomy.org/uri/author/Antoniou">
 <title>BibSonomy publications for /author/Antoniou</title>
 <link>http://www.bibsonomy.org/burst/author/Antoniou</link>

 <description>BibSonomy BuRST Feed for /author/Antoniou</description>
 <dc:date>2008-03-29T16:46:57+01:00</dc:date>

 <items>
  <rdf:Seq>
   <rdf:li
rdf:resource="http://www.bibsonomy.org/uri/BibTeX/243bc024957995096f22ccccaeb7b8208/callagialla"/>
   <rdf:li
rdf:resource="http://www.bibsonomy.org/uri/BibTeX/25013f086e491a95e61eb8cfe1ac4bec5/taspel"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/21c3e2144e55c22dccf499b5bc162381d/idsia"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/224d93abc80174ed2b45ca87e327d1eaf/dblp"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/23dbfbf86e1bb3e6a0857c55a328ed49f/imtm"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/22eb03fffe8cad4b8e43332c93c673db9/dblp"/>
   <rdf:li
rdf:resource="http://www.bibsonomy.org/uri/BibTeX/21c3e2144e55c22dccf499b5bc162381d/schaul"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/2daec8aa347175f36957df80dc6b406fa/dblp"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/22d0706919dafa40f7d72a19537abe243/dblp"/>
   <rdf:li rdf:resource="http://www.bibsonomy.org/uri/BibTeX/218357a0b4dafdf509c132899f1d4b3f8/dblp"/>
  </rdf:Seq>
 </items>

</channel>

<item rdf:about="http://www.bibsonomy.org/uri/BibTeX/243bc024957995096f22ccccaeb7b8208/callagialla">
  <title>Ontology Language: OWL</title>
  <link>http://www.bibsonomy.org/BibTeX/243bc024957995096f22ccccaeb7b8208/callagialla</link>
  <dc:creator>callagialla</dc:creator>
  <dc:date>2008-03-20T21:01:58+01:00</dc:date>
  <dc:subject>diss </dc:subject>

  <content:encoded>
            <![CDATA[
     <div class="block">
             <div class="bmtitle">
<a href="http://www.bibsonomy.org/BibTeX/243bc024957995096f22ccccaeb7b8208/callagialla"> Ontology
Language: OWL</a>
    </div>
<div class="bmdesc">
 <span style="color:#555555;">
  Grigoris <a href="http://www.bibsonomy.org/author/Antoniou">Antoniou</a>
          and Frank Van <a href="http://www.bibsonomy.org/author/Harmelen">Harmelen</a>
 </span>
 <em>Handbook on Ontologies: International Handbook on Information Systems</em>
  67-92
 (2004)
</div>
<span class="bmmeta">
     to
    <span class="bmtags">
    <a href="http://www.bibsonomy.org/user/callagialla/diss">diss</a>
    </span>
         by <a href="http://www.bibsonomy.org/user/callagialla">callagialla</a>
    on 2008-03-20 21:01:58 </span></div>
  ]]>
  </content:encoded>
  <taxo:topics>
```

```
 <rdf:Bag>
  <rdf:li rdf:resource="http://www.bibsonomy.org/tag/diss" />
  </rdf:Bag>
 </taxo:topics>
 <burst:publication>

  <swrc:InCollection>
   <swrc:booktitle>Handbook on Ontologies: International Handbook on Information
Systems</swrc:booktitle><swrc:pages>67-92</swrc:pages><swrc:publisher><swrc:Organization
swrc:name="Springer"/></swrc:publisher><swrc:title>Ontology Language:
OWL</swrc:title><swrc:year>2004</swrc:year><swrc:keywords>diss </swrc:keywords><swrc:date>2008-03-20
21:01:58.0</swrc:date><swrc:hasExtraField>
  <swrc:Field swrc:key="isbn" swrc:value="3540408347"/>
 </swrc:hasExtraField>
<swrc:author>
 <rdf:Seq>

 <rdf:_1><swrc:Person swrc:name="Grigoris Antoniou" /></rdf:_1>
 <rdf:_2><swrc:Person swrc:name="Frank Van Harmelen" /></rdf:_2>
 </rdf:Seq>
</swrc:author>

<swrc:editor>
 <rdf:Seq>
 <rdf:_1><swrc:Person swrc:name="Steffen Staab" /></rdf:_1>
 <rdf:_2><swrc:Person swrc:name="Rudi Studer" /></rdf:_2>
 </rdf:Seq>

</swrc:editor></swrc:InCollection>
  </burst:publication>
 </item>

</rdf:RDF>
```

References

1. Nick Knouf (2004). Working Draft. In *BibTeX Definition in Web Ontology Language (OWL) Version 0.1.* Retrieved March 29, 2008,
   from http://zeitkunst.org/BibTeX/0.1/
2. Wikipedia article. BibTeX. Retrieved March 29, 2008,
   from http://en.wikipedia.org/wiki/BibTeX
3. Wikipedia article. Owl-s. Retrieved March 29, 2008,
   from http://en.wikipedia.org/wiki/Owl-s
4. Wikipedia article. BibSonomy. Retrieved March 29, 2008,
   from http://en.wikipedia.org/wiki/BibSonomy/
5. Xml Schema taken from http://www.bibsonomy.org/burst/author/Antoniou

With an estimated 40,000 citations, the Handbook of Mathematical Functions may...Â Handbook of mathematical functions with formulas, graphs, and mathematical tables. Item Preview. remove-circle.Â Edited by Milton Abramowitz and Irene Stegun and released by the National Bureau of Standards in 1964, the Handbook was the result of a ten-year project to compile essential information on the special functions of applied mathematics (e.g., Bessel functions, hypergeometric functions, and orthogonal polynomials) for use in applications.