The Web of Data for E-Commerce in One Day

A Hands-on Introduction to the GoodRelations Ontology, RDFa, and Yahoo! SearchMonkey

May 31, 2009, Crete, Greece

Martin Hepp
Universität der Bundeswehr München, Munich, Germany

Michael Hausenblas
Digital Enterprise Research Institute (DERI), Galway, Ireland
**Logistics**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00-10:30</td>
<td>Overview and Motivation: Why the Web of Data is Now 20’</td>
</tr>
<tr>
<td></td>
<td>Quick Review of Prerequisites 25’</td>
</tr>
<tr>
<td></td>
<td>The GoodRelations Ontology: E-Commerce on the Web of Data 45’</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>11:00-13:00</td>
<td>The GoodRelations Ontology: E-Commerce on the Web of Data 60’</td>
</tr>
<tr>
<td></td>
<td>RDFa: Bridging the Web of Documents with the Web of Data 45’</td>
</tr>
<tr>
<td>13:00-14:30</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>14:30-16:00</td>
<td>Expressing GoodRelations in RDFa: A Running Example 25’</td>
</tr>
<tr>
<td></td>
<td>Querying the Web of Data for Offerings – SPARQL 10’</td>
</tr>
<tr>
<td></td>
<td>Publishing Semantic Web Data: Make Your RDF Available 10’</td>
</tr>
<tr>
<td></td>
<td>Hands-on Exercise: Annotating a Web Shop 30’</td>
</tr>
<tr>
<td></td>
<td>Querying the Web of Data – Exercises 15’</td>
</tr>
<tr>
<td>16:00-16:30</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>16:30-18:00</td>
<td>Yahoo SearchMonkey and Yahoo BOSS 45’</td>
</tr>
<tr>
<td></td>
<td>GoodRelations – Advanced Topics 20’</td>
</tr>
<tr>
<td></td>
<td>RDFa Advanced Topics 20’</td>
</tr>
<tr>
<td>31.05.2009</td>
<td>Discussion, Conclusion, Feedback Round 5’</td>
</tr>
</tbody>
</table>
Hands-on Exercises: Creating, Publishing, and Querying

Martin Hepp
Agenda

1. Querying the Web of Data for Offerings – SPARQL
2. Publishing Semantic Web Data: Make Your RDF Available
3. Hands-on Exercise: Annotating a Web Shop
4. Querying the Web of Data – Exercises
Learning Goal

• Learn the basics of the SPARQL query language
• Learn to use SPARQL for commerce data
• Learn how to publish Semantic Web data.
SPARQL

Query Language

Endpoint Specification
SPARQL: Query Language Specification

SPARQL Query Language for RDF
W3C Recommendation 15 January 2008

This version:
http://www.w3.org/TR/2008/REC-rdf-sparql-query-20080115/

Latest version:
http://www.w3.org/TR/rdf-sparql-query/

Previous version:

Editors:
Eric Prud'hommeaux, W3C <eric@w3.org>
Andy Seaborne, Hewlett-Packard Laboratories, Bristol <andy.seaborne@hp.com>

Please refer to the errata for this document, which may include some normative corrections.

See also translations.

http://www.w3.org/TR/rdf-sparql-query/

http://www.w3.org/TR/2008/REC-rdf-sparql-query-20080115/
SPARQL Query Structure

# comments

PREFIX gr:<http://purl.org/goodrelations/v1#>

SELECT ?var1 ?var2 WHERE 
{ ?var1 rdf:type gr:Offering.
  FILTER (?date < "2009-05-25T00:00:00Z"^^xsd:dateTime) }
SPARQL: Matching Literals

PREFIX xsd:<http://www.w3.org/2001/XMLSchema#>

SELECT ?v WHERE {
  ?v ?p "abc"^^xsd:datatype
}
SPARQL: Matching Strings

PREFIX dc: <http://purl.org/dc/elements/1.1/>
SELECT ?title
WHERE { ?x dc:title ?title
  FILTER regex(?title, "^SPARQL") }

^= Starts with
SPARQL Query

# find expired offerings:

PREFIX gr:<http://purl.org/goodrelations/v1#>

SELECT ?o, ?date WHERE

{?o rdf:type gr:Offering.
 ?o gr:validThrough ?date.
 FILTER (?date < "2009-05-25T00:00:00Z"^^xsd:dateTime) }

31.05.2009
SPARQL Query

# find label for UPC/EAN "0001067792600"

PREFIX gr:<http://purl.org/goodrelations/v1#>
PREFIX xsd:<http://www.w3.org/2001/XMLSchema#>

SELECT ?uri, ?label WHERE
{ ?uri rdf:type gr:ProductOrServiceModel.
  ?uri gr:hasEAN_UCC-13 "0001067792600"^^xsd:string.
  ?uri rdfs:label ?label}
Publishing Data on the Semantic Web
Publishing RDF/XML Data on the Web

- Data Delivery Options
- Publish RDF/XML file
- RDFa
- dataRSS
Step 1: Publish File

Save the RDF/XML file under the filename
- `semanticweb.rdf`

in the root directory of your Web server so that it becomes available as
- `http://example.org/semanticweb.rdf`
Point to RDF/XML from HTML/XHTML

• Add a link element pointing to this file to the header of your main Web page (or other pages, too):

```html
<html lang="en">
<head>
  <title></title>
  <link rel="meta" type="application/rdf+xml" title="RDF/XML data for ***your company name***" href="http://www.example.org/semanticweb.rdf" />
</head>
...
Notify Semantic Web Search Engines

To do so, simply paste the URI

- http://example.org/semanticweb.rdf

into the respective fields of the following submission pages:

- http://pingthesemanticweb.com/
Yahoo SearchMonkey

Currently considers RDF data only if
• submitted via the (proprietary) dataRSS feed format or if
• embedded inside XHTML pages via RDFa.

http://www.ebusiness-unibw.org/tools/rdf2datarss/
Server Configuration

• Rewrite
  – http://example.org/semanticweb to
  – http://example.org/semanticweb.rdf

• Correct media type rdf+xml
  – The content type (media type) of the file returned must be set correctly to "rdf+xml".
Server Configuration

On Appache servers, simply edit the .htaccess file:

#Rewrite rule to serve RDF/XML content from the vocabulary URI
RewriteRule ^semanticweb$ semanticweb.rdf

#Directive to ensure *.rdf files served as appropriate content type
#if not present in main apache config
AddType application/rdf+xml .rdf
Publishing RDF/XML Data on MS IIS Platforms

- Ionics Isapi Rewrite Filter for IIS 5.0 and IIS 6.0
  - http://iirf.codeplex.com/
- Microsoft URL Rewrite Module for IIS 7.0
  - http://support.microsoft.com/kb/324064
    (Thanks to Christophe Debruyne and Robert Meersman for the hint!)
- ModRewrite
  - http://www.micronovae.com/ModRewrite/ModRewrite.html
    (Thanks to Sergio Fernández for the link!)
Semantic Sitemaps

- Efficient means of telling a Semantic Web search engine which RDF files are available

Additional Information

• Cool URIs for the Semantic Web, W3C Interest Group Note 03 December 2008
  http://www.w3.org/TR/cooluris/
Quizzes

• Why is it important to use the OPTIONAL clause for patterns that cannot be assumed to be found?

• What is a Semantic Sitemap?
Thank you.