The Web of Data for E-Commerce in One Day

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

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Logistics

09:00-10:30  Overview and Motivation: Why the Web of Data is Now 15’
Quick Review of Prerequisites 15’
The GoodRelations Ontology: E-Commerce on the Web of Data 60’

10:30-11:00  Coffee Break

11:00-13:00  RDFa: Bridging the Web of Documents with the Web of Data 45’
Expressing GoodRelations in RDFa: A Running Example 30’
GoodRelations – Advanced Topics 45’

13:00-14:30  Lunch Break

14:30-16:00  Querying the Web of Data for Offerings – SPARQL 15’
Hands-on Exercise: Annotating a Web Shop 45’
Querying the Web of Data – Exercises 15’
Publishing Semantic Web Data: Make Your RDF Available 15’

16:00-16:30  Coffee Break

16:30-18:00  Yahoo SearchMonkey and Yahoo BOSS 45’
RDFa Advanced Topics 30’
Discussion, Conclusion, Feedback Round 15’

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RDFa: Bridging the Web of Documents with the Web of Data

Michael Hausenblas and Martin Hepp
Learning Goal

• Understand the data quality problems that can result from the „naive“ Semantic Web

• Understand the RDFa syntax for embedding RDF data into XHTML documents

• Be able to express GoodRelations data in RDFa
Data Redundancy and Data Quality Problems

Addresses

Addresses

Addresses

Copy of Addresses

Copy of Addresses

Time

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Data Redundancy in the Semantic Web

Web Page
HTML/XHTML

Web Page
HTML/XHTML

Meta-Data
RDF/XML

Meta-Data
RDF/XML

Time
Content Negotiation

http GET

Web Server

Returns

Web Page
HTML/XHTML

Meta-Data
RDF/XML

Web Page
HTML/XHTML

Meta-Data
RDF/XML
Embedding RDF in XHTML

- Being able to represent meaning and rendering information in a **single** document

Web Server

http GET

XHTML + RDFa

Returns

XHTML + RDFa
W3C RDFa = W3C RDF + XHTML

Resource Description Framework in attributes

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What is RDFa?

• From the Web of Documents' point-of-view: a set of new (X)HTML attributes to express metadata within (X)HTML

• From the Web of Data point-of-view: a serialization format for RDF (such as RDF/XML, etc.), where the RDF triples are "embedded" into (X)HTML
Principles

- Schema Extensibility (other than with Microformats)
- Don’t-repeat-yourself (DRY)
- Context/Locality (contrast with GRDDL)
- Self-contained
RDF in Attributes

<h1 property="dc:title">GoodRelations RDFa minimal example</h1>
Subject – Predicate – Object

- **@about** (URIsorSafeCURIE) … for setting the subject of a statement
- **@typeof** (CURIEs) … for setting the type(s) of a resource (syntactic sugar)
- **@href/@resource** (URIsorSafeCURIE) … for setting the object of a statement
Subject – Predicate – Object

- `@property` (CURIEs) … for relating a resource to a literal value, that is, for datatype properties
- `@rel/@rev` (reserved word | CURIE)+ … for relating a resource to another resource, that is, for object properties
Subject – Predicate – Object

- **@content** (CDATA) … for setting a literal object value
- **@datatype** (CURIE) … for the datatype of a literal object value - if not specified, then the default value is xsd:string
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML +RDFa 1.0//EN" "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head profile="http://www.w3.org/1999/xhtml/vocab">
  <title>GoodRelations RDFa minimal example</title>
</head>
(...)

Example - Markup

- [http://www.w3.org/TR/xhtml-rdfa-primer/alice-example.html](http://www.w3.org/TR/xhtml-rdfa-primer/alice-example.html)
- Install Operator on FF
- Debug page
Example - Queries

Who is the creator of the post with the title "The trouble with Bob"?

PREFIX dc: <http://purl.org/dc/elements/1.1/>

SELECT ?creator_of_post
WHERE {
?post dc:title ?post_title ;
FILTER regex(?post_title, "The trouble with Bob", "i")
}

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Example - Queries

Whom the heck knows Alice?

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?whom_name ?whom_homepage
WHERE {
  ?alice rdf:type foaf:Person ;
    foaf:mbox <mailto:alice@example.com> ;
    foaf:knows ?whom.
  ?whom rdf:type foaf:Person ;
    foaf:name ?whom_name ;
    foaf:homepage ?whom_homepage .
}
Quizzes

• Why is RDFa important to simplify the creation of Semantic Web content?
• How does RDFa contribute to a better quality of Semantic Web data?
• What is the main principle of RDFa?
• Name the key elements and give a simple example of using RDFa.
Thank you.