



INSTITUTE FOR LEARNING
AND RESEARCH TECHNOLOGY

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Semantic Web Update

W3C RDF, OWL Standards,
Development and Applications

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"A centre of excellence in the development and use of
Information and Communication Technology to support learning and research."



INVESTOR IN PEOPLE

Introduction

- Semantic Web Activity
- RDF - RDF Core
- OWL - WebOnt
- Interest Group – Query, Calendaring
- SWAD and Applications
- Future Work

A couple of disclaimers...

- This is not an introduction to the Semantic Web or RDF
- I do not speak for the World Wide Web Consortium (W3C)

Myself

- Metadata
- Dublin Core
- Resource Description Framework (RDF)
- Technical Developer
- Free Software / Open Source

Semantic Web Activity

- Feb 2001 to present
- RDF, OWL and others – XML, XSD
- Coordination Group
- WGs: Technical work (Royalty Free)
 - RDF Core, WebOnt
- IGs: Education and Outreach
- SWAD

RDF Core Working Group

- April 2001- present
- Revising, clarifying (+datatypes)
- No new XML syntax
- Last Call WDs January 2003
- Comments mostly processed
- Several complete implementations

RDF Documents

- RDF M&S (1999) split:
 - Concepts
 - Semantics (Model Theoretic)
 - Primer
 - XML Syntax (RDF/XML)
- Test cases
- Vocabulary (was called RDF Schema)

RDF Revised – what changed?

- Strong formal semantics
- Clear split of fundamentals, semantics and transfer syntax
- NEW: Datatypes based on W3C XML Schema Datatypes
- NEW: Blank Nodes
- XML syntax changed

RDF/XML (Revised)

- Added:
 - Blank node identifiers `rdf:nodeID`
 - Instance datatypes `rdf:datatype`
 - Resource collections
`rdf:parseType="Collection"`
- Removed:
 - `rdf:aboutEach` and `rdf:aboutEachPrefix`
 - `rdf:bagID`
 - Nasty corner cases

Web Ontology Working Group

- August 2001 to present
- Ontology:
“A formal, explicit specification of a shared conceptualisation”
- 50+ member organisations

Web Ontology Language (OWL)

- Based on research by DAML+OIL
- Web-like linking of ontologies
- Strong formal semantics
- Maximum compatibility with:
 - XML, RDF, XSD
 - Existing ontology and logic work

OWL Layers

- OWL Lite
 - Hierarchy with simple constraints
- OWL DL
 - Max. expressiveness, computationally complete
 - Compatible with DLs - Description Logics
- OWL Full
 - Very expressive, no computation guarantees, RDF

OWL Documents

- (Use cases – for OWL design)
- Overview
- Guide
- Reference
- Semantics and Abstract Syntax
- Test Cases

Possible(!) Standards Schedule

- RDF: Proposed REC - June
 - Several complete implementations exist already
- OWL: Candidate REC - June
 - Gathering evidence of all OWL Lite/DL/Full

RDF (SemWeb) Interest Group

- Mailing list
- Collaborative spaces (IRC, wiki)
- Meetings – topic-based online
- Education and Outreach (with WAI)
- Task Forces – short lifespan, focused

RDF IG Task Forces and Community

- Query
 - Use case and test case focused
 - Participation of key implementers
- Calendaring, Scheduling and Events
 - Working with a small iCalendar model in RDF
 - Schema, data, test cases, conversion tools
- Geographical
 - Vocabulary for places

Semantic Web Advanced Development (SWAD)

- SWAD MIT (DARPA, HP)
 - MIT/LCS DAML, Dspace/Simile
 - Development, Logic languages, collaboration
- SWAD Europe (EU IST)
 - at W3C/ERCIM, ILRT, HP, Rutherford, Stilo
 - Scenario-led practical work targeted at developers

SWAD Europe



SW Coordination and Liaison in W3C

- XML schema
- Web Services – choreography
- TAG
- P3P and CC/PP – RDF applications
- XML Protocol (SOAP)
- WAI

SW Coordination and Liaison

- IETF – URIs and resources
- OASIS – Topic Maps
- OMG – UML for OWL
- Vocabularies:
 - Creative Commons
 - Dublin Core
- ...

Hot Application Topics

- Self-described personal information (FOAF)
- Flexible syndication (RSS 1.0)
- Geo – spacenamespace, GeoURL
- Weblogs (Trackback, CC, all above)
- Events and calendaring

Future Work

- Focus moving to applications
- On the standards side:
 - RDF Query (application led)
 - XML Schema annotations
 - Web Service description
 - (X)HTML with RDF (annotations, embedding)
- Ongoing research
 - Trust, proof, query

Questions?

Thank You

Home Page

<http://purl.org/net/dajobe/>