

Simile

Where's the RDF browser?

Visualization issues on the Semantic Web

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Introducing the problem

The Problem

(obvious part)

- RDF is a very abstract and unstructured data model.
- Abstraction leads to lack of absolute visualization information.
- Lack of structure makes it hard to achieve visual coherence.

The Problem

(not-so-obvious part)

- Different uses of the same data require different visualization to maximize usability.
- Existing visualization/use metaphors drive the user expectations.
- Knowledge of the data model drives both requirements and expectations.
- The parallel computation abilities of wetware still far exceeds the one of hardware!

Visualization Qualities

- Low data pollution, high S/N ratio.
- Fast, smooth and natural interactivity.
- Well-defined scope.

Structure vs. Content

- Knowledge of structure and content are sometimes independent.
- They drive expectations and requirements in terms of usability.
- “serendipitous discovery”, “network effect”, “data folding”, “cognitive dissonance” all happen when the border between structure and content gets blurred.

The SIMILE Project

- Semantic Interoperability of data across unlike environments.
- Research and apply potential solutions from the semantic web domain of technologies that can improve digital libraries and digital preservation efforts.



SIMILE Requirements

- Has to work “yesterday”!
- Deliverables must be usable by librarians as well as end-users.
- Real Open source model (not just having the source available)!



SIMILE's RDF Browsers

- Domain specific and end-user friendly
 - Longwell
- Domain agnostic and RDF-savvy friendly
 - Knowle
 - Welkin

Longwell (I)

- Consumes arbitrary RDF data (in a Jena model), but requires previous knowledge about its structure in order to configure it for the specific domain.
- Based on facet restriction drill-down model (a.k.a. faceted browsing)
- Free-text can be used as a facet.
- iTunes-like type-driven filtering of facets.

Longwell (II)

- Configuration is an RDF document itself (no coding required)
- Implemented as a Java web application and renders on XHTML+CSS2 (no software installation required on the client side)

- Ships with Longwell.
- General-purpose, web-based RDF browser.
- As for Longwell, works as a Java web application on the server and transforms RDF data into XHTML+CSS2 pages and hyperlinks into further model browsing actions.

Longwell + Knowle Demo

Welkin (I)

- General Purpose Graphic RDF Browser.
- Based on the visualization of the graph structure of the RDF model.
- Highly interactive.
- Targeted at data analysts rather than browsing end-users.

Welkin (II)

- Implemented as a Java client application (no installation with Java WebStart, only the JVM required).
- Works on Win32/Linux/MacOSX

Welkin Demo

The Road Ahead

- RDF Visualization Ontology.
- Think of CSS for RDF.
- Follows a pure declarative style.
- Open and multi-project joint effort.
- Expected to be proposed as a note to W₃C.

Longwell

- Scalability to 1Gtriples and 1Mfacets maintaining subsecond performance per request on a regular server system.
- Integration with RDF harvesting tools.
- Transition to use Fresnel as the presentation ontology.

- N3/Turtle support (coming up real soon).
- Remote URL loading (and remote SPARQL integration, once specified).
- More effective/scalable node clustering solutions and better visual S/N ratio control.
- Ability to dereference URIs as URLs to further populate the model.

Further Questions

(the obvious ones)

- RDFization: “how do I convert ??? into RDF?”
Necessary to unlock the “chicken-egg problem” of the semantic web.
- “Where is the RDF editor?” Is it a real problem or can be solved with RDFization?

Further Questions

(the not-so-obvious ones)

- Is validation still meaningful in an open world assumption? If not, what do we say to those who want it?
- URIs were made to avoid unwanted ID collisions, result is that wanted mappings are scarce too since ontology reuse is so little. How do we improve ontology reuse? Is it possible to perform heuristic linkage? Would librarians tolerate it?

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Grazie!



Now, your questions!

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