Interlinking of Resources with Semantics

Michael Hausenblas and Wolfgang Halb

Institute of Information Systems & Information Management,
JOANNEUM RESEARCH, Steyrergasse 17, 8010 Graz, Austria
`firstname.lastname@joanneum.at`

Abstract. Semantic Web applications that are after utilising linked-data datasets are often limited by the interlinking methodology available. Based on our experiences with building a linked-data dataset for humans and machines, we propose a new way of creating semantic links, labelled as User Contributed Interlinking.

1 Linking Open Data 101

Links are one of the key factors that made the Web of Documents successful. The same holds for the Web of Data; rather than having *untyped hyperlinks* between *documents*, RDF properties (such as `rdfs:seeAlso`) are interpreted as "semantic hyperlinks". The linked data principles[1] basically capture this idea. The W3C Linking Open Data (LOD) project is a collaborative effort to bootstrap the building of linked-data datasets. In [1] the publication of linked data is described; further, the two basic approaches for creating links to other datasets are outlined: RDF links can either be set manually or generated by automated linking algorithms for large datasets.

2 User Contributed Interlinking

With the User Contributed Interlinking (UCI) [2] we have proposed a novel approach for creating high-quality interlinks by relying on end-users. For large datasets, such as riese [2] where the entire European statistics are brought to the Semantic Web, it might appear impractical at first sight to manually generate interlinks to other datasets. However, we strongly believe that by applying the Wiki-principle end-users can be encouraged to contribute to linked datasets with similar enthusiasm as for example the case with Wikipedia.

We have implemented a generalised UCI in a demonstrator called "**i**nterlinking of **r**esources with **s**emantics" (IRS), available at `http://143.224.254.32/irs/`. It allows to list, add, and remove user-contributed semantic links between any resources identified through URIs. With an additional `format` parameter the output format can be controlled (RDF/XML, Turtle, XHTML+RDFa[3]).

---

[1] `http://www.w3.org/DesignIssues/LinkedData.html`

[2] `http://riese.joanneum.at`

[3] `http://www.w3.org/TR/xhtml-rdfa-primer/`

A screen shot of IRS is shown in Fig. 1. The system enables end-users to create semantic links (currently `owl:sameAs`, `rds:seeAlso`, and `foaf:topic` are supported), as well as to ask about existing links. Further, a content preview is available: Due the fact that IRS builds upon ARC[4], a range of structured metadata (such as microformats, RDFa, eRDF) is supported. A simple version of provenance tracking is offered, as well. The user-contributed links are placed into a named graph, which defaults to `http://example.org/#unknown`. When retrieving link information, one is therefore able to understand *who* stated *what*. Currently, all users concurrently work in a single space. Finally, a simple off-the-shelf SPARQL-endpoint is also available in IRS.
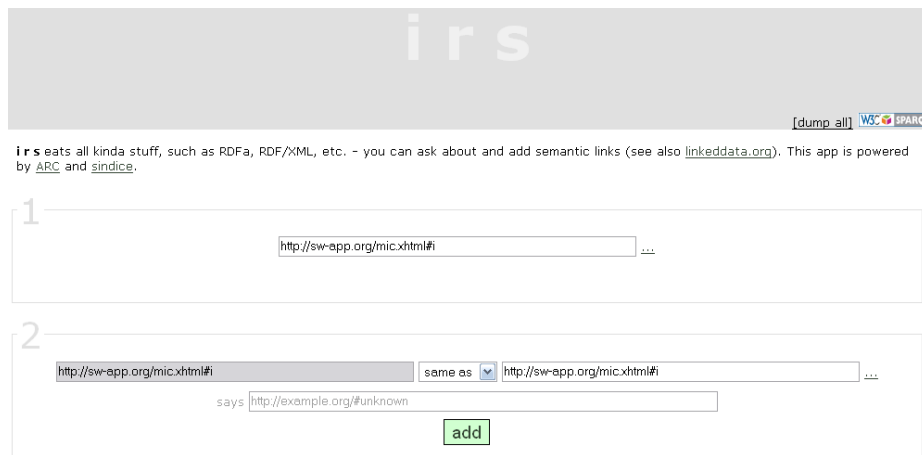

Fig. 1. A demonstrator for a generalised UCI: IRS.

Acknowledgements

References

1. C. Bizer, R. Cyganiak, and T. Heath. How to Publish Linked Data on the Web. `http://sites.wiwiss.fu-berlin.de/suhl/bizer/pub/LinkedDataTutorial/`, 2007.
2. W. Halb, Y. Raimond, and M. Hausenblas. Building Linked Data For Both Humans and Machines. In *WWW 2008 Workshop: Linked Data on the Web*, Beijing, China, 2008.

---

[4] `http://arc.semsol.org/home`

[5] `http://kspace.qmul.net/`

[6] `http://www.sembase.at/index.php/UAd`