Semantic Web Tools from MIND SWAP

Jennifer Golbeck, Ron Alford, Ross Baker, Mike Grove, Jim Hendler, Aditya Kalyanpur, Amy Loomis, Ron Reck

University of Maryland, College Park, A.V. Williams, College Park, Maryland
USA
semweb@midnswap.org

Abstract

This poster introduces a suite of semantic web tools developed at MIND SWAP: Janus, a multiple-ontology RDF Editor; the RDF Web Scraper, a screen scraper that generates RDF from formatted HTML; RIC, which provides a form interface for creating RDF instances, and the Virtual Portal. Together, these tools provide the next step toward encouraging popular use of semantic markup, and developing a web of knowledge.

Janus: An RDF Editor

The RDF (Resource Description Framework) Editor is a tool that allows users to markup their web pages/text in RDF using web ontologies in association with user-specific terms and elements. The aim of this software is to provide the user with a flexible environment in which she can create web page without hindrances involving markup, to provide a reference to existing ontologies on the Internet in order to use more precise references in her own web page/text, and to ensure accurate and complete RDF markup with scope to make modifications easily

To achieve these goals, Janus introduces several features:

1. HTML Editor with Preview Browser - Used for creating and deploying web pages
2. Ontology Browser - Used to provide the user with a continuous reference to web ontologies that the user can import to the local database
3. Textual Semantic Lists - Used to classify the user data set semantically into one of four basic elements: Class, Object, Property and Value

RIC: RDF Instance Creator

The RDF Instance Creator (RIC) is a tool designed to ease the process of marking up data. RIC allows the user to generate perfectly valid RDF simply by filling a series of forms. The intent is to free the user from needing to know RDF while still affording all the benefits that it has to offer.

The Virtual Portal

A particular focus of our group is the creation of a "virtual portal" technology which will motivate researchers and students in many areas to add semantic markup to documents, images and data. Using the markup tools described above, authors will be able to link their evolving web resources to terms from multiple ontologies. As these links are added, queries are made to various web backends that contain similar pointers from other documents, databases, image archives, etc. The results are displayed to the user, allowing a constant, dynamical web portal to be created. This portal contains pointers to documents that are on similar topics, databases that can answer queries about conceptually related science, and images and other multimedia resources.   Thus, for example, a scientist authoring a paper or web page can be guided to related photos they can use in their documents, to database queries that can show recent results and to other documents they might want to cite or link to.

RDF Web Scraper

Some web pages have regular structure with labeled fields, lists and tables. Often, an analyst can map these structures to an ontology and write a program to translate a portion of the web page into the semantic markup language. The RDF Web Scraper is a tool that helps users specify a method for automatically extracting RDF markup from these kinds of web pages.

All of this software can be linked to create a cohesive system of applications. By allowing users to create RDF markup from scratch as well as from pre-existing documents, and providing a mechanism for indexing and searching the semantic content, this suite of RDF applications fully addresses the developmental needs of the semantic web.