SemTalk: A RDFS Editor for Visio 2000

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1. Introduction

SC4 is a Start-Up company founded January 2001. Our mission is to deliver tools and consulting solutions which help a wide community of users to publish their knowledge on the Semantic Web. We believe that the Semantic Web will change the way people and machines are communicating dramatically. The most important critical success factor (beyond standards) of the Semantic Web is that the devices which people use to enter their knowledge into the Semantic Web are easy to use and resulting models are easy to understand.

One major problem we found at most of our customers is the need for enterprise or organization wide ontologies, with domain or - especially in Europe - country specific variants. A very typical situation is the integration of IT departments after a merger. Those ontologies are needed for Knowledge Management Systems, Data Warehouse Systems and the specification of new software. Other applications are CRM and EAI solutions.
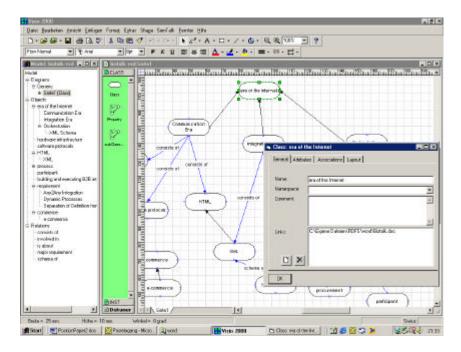
2. SemTalk

Our product SemTalk™ uses MS Visio for graphical specification of knowledge. It is a graphical Editor for RDFS integrated into MS Office. We just attach a RDF model to a document as a graphical summary of its contents.
We do not assume every letter or mail in a newsgroup to modeled, but in a lot of cases a simple drawing sketching out the most important statements will be worth to spend this small effort.
Sharing knowledge and documents will become simple and cheap this way. SemTalk is intended to be an equivalent to FrontPage for the Semantic Web.
It is our vision that the Semantic Web and SemTalk™ will increase the use of modeling in the daily work significantly.

SemTalk is an add-in to MS Visio 2000 which enhances Visio by the functionality which makes it a real modeling tool: Navigation and model based browsing, an Explorer, Html-Generator etc.

The SemTalk screen dump shows an RDFS model on the drawing pane. The model explorer is on the left hand side and a class editor on the right.

SemTalk adds diagram types and tool meta-models to Visio. Using those meta-models SemTalk can emulate popular modeling methods like IDEF or EPC and add class models in RDFS to their process models which give the processes more semantics.

For the simplified creating of ontologies we use threefold strategy in our workshops:

- Linguistic / statistical analysis of source documents (together with Univ. Leipzig)
- Direct linking of source documents to graphical models and vice versa
- Business process models to reduce the complexity of the modeling space

There is a wide range of application areas. Nearly all large and mid-size organizations currently capture a lot of knowledge in Visio drawings.
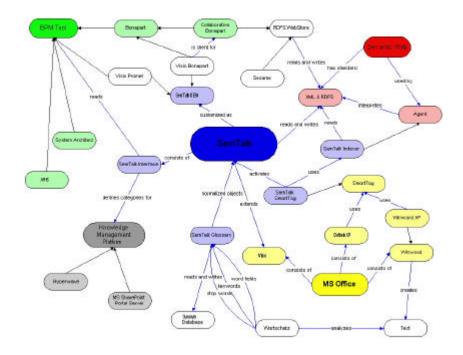
3. Architecture

SemTalk™ is implemented basically in Visual Basic and MSXML. It is an add-in for Visio which adds modeling functionality to Visio. There are specific Visio Stencils for class modeling, which is the most important feature. The standard notation is kept as simple as possible in order to make the models readable for non technical users. For specific purposes other Shapes such as UML may be used. SemTalk™ reads and writes a subset of RDFS.

Using the class models, classes can be defined for any other Visio object. There are thousands of symbols for PCs, Printer etc.

Assigning a class and super- or subclasses to those symbols can give any Visio diagram semantics. With so called OEM versions of SemTalk the tool comes with additional Stencils for specific methods e.g. for Business Process Modeling. Those methodologies usually gain additional functionality from SemTalk' RDFS compatibility.

SemTalk has an integrated object engine to take care of object representation and some reasoning, such as inheritance. The object engine has been built in the tradition of KEE and Kappa. It is not as sophisticated as CLOS or Protégé.

RDFS models are stored in a distributed, hyperlinked fashion as XML flat files in addition to the graphical information of the Visio document. SemTalk is linked to other Semantic Web applications via RDFS or tool specific HTTP interfaces.

This model shows the basic concepts related to SemTalk. The major topics are visualized with dark colors: SemTalk, MS-Office, Semantic Web, Business Process Modeling Tools and Knowledge-Management Tools. Related concepts as Visio, WinWord and SemTalk Smart Tags are shown with light colors. Properties are blue links with a label and specializations are black links without a label. The RDFS for the model can be found at www.semtalk.com/semtalk.rdfs.xml

SemTalk Components –shown in light blue - are:

SemTalk Smart Tags: The integration with Office XP . SemTalk is integrated in Word XP in a way that it analyzes each sentence you type and matches it with an RDFS model.

- SemTalk Indexer: In order to do this we have implemented a simple model crawler. We definitely need especially for this issue a better compliance to standards.

- SemTalk OEM Versions for BPM Methods. These are pre-build meta-models, shapes and dialog for specific methods.

- SemTalk Interfaces

- SemTalk Glossary is an add-on which supports users while the creation of large ontologies originating from source documents. This is the interface to the linguistics tool of Leipzig Technical University

4. Status and future research

SemTalk™ has been presented the first time at the DFKI / Univ. Karlsruhe knowledge management conference in Baden-Baden March 2001.

SemTalk is currently beta software. Several pilot projects are ongoing.

Our partners are currently Microsoft / Visio, IMG AG Switzerland, a major consulting company related to Hochschule St. Gallen, and Intraware AG, a BPM tool vendor. Intraware's most important US customer for its product Bonapart is Mitre Corp. We are currently enabling Bonapart to the Semantic Web by an HTTP based R/W RDF(S) interface.

SemTalk™ can be used as a client for BPM repositories as System Architect, Bonapart and in the near future with OntoWeb's Sesame. One of the next steps might be to specify standard query interfaces to Semantic Web repositories.

Since our background is BPM and especially simulation, we are very interested in agent technology, DAML and other ways to build easy to use or ambient appliances using the Semantic Web.

We want to thank the teams at Kostroma University, GUS for helping during implementation and University of Applied Science Brandenburg, Germany for beta testing.

References:

1. SemTalk Homepage: www.semtalk.com
2. Company Homepage: www.sc4.org
3. WM2001:   www.semtalk.com/pub/WM2001.htm