SemTalk: Authoring the Semantic Web with MS Visio

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The Semantic Web is a new layer of the Internet that enables semantic representation of the contents of existing web pages. Using common ontologies, human users sketch out the most important facts in models that act as intelligent whiteboards. Once models are broadcasted to the Internet, new and intelligent search engines, "ambient" intelligent devices and agents would be able to exploit this knowledge network. [1]

The main idea of SemTalk [2], [4] is to empower end users to contribute to the Semantic Web by offering an easy to use MS Visio-based graphical editor to create RDF-like schema and workflows. Since the modeled data is found by Microsoft's Office XP SmartTags, users can benefit from these Semantic Webs as part of their daily work with other Microsoft Office products such as Word, Excel or Outlook.

SemTalk's graphically configurable meta model also extends the functionality of the Visio modeling tool because it makes it easy to configure Visio to different modeling worlds such as Business Engineering and CASE methodologies but also to these features can be applied to any other Visio drawings. SemTalk is built on a RDFS-like XML data structure. Standard RDFS has been enriched by diagramming information and object oriented features like *methods* and *states.* Optimized structures for basic inferences such as inheritance and graph traversals are also included. There is an object engine providing a COM API to allow the engine to be used within MS Office products. Microsoft's Visio was selected as the graphical viewer because it is commonly used and because it is completely programmable. An object engine is used to define the semantic structures/ meta model for the existing Visio shapes. Shapes are graphically defined and rules are created to specify which shapes are allowed to be connected to each other. SemTalk supplies the infrastructure necessary to define complete modeling methods inside Visio. Examples of commonly used modeling methods available in SemTalk are DAML, ERP and the BPM methods. SemTalk also contains interfaces to CASE tools such as Rational Rose and to Business Process Modeling Tools. There is a simple report generator for creating HTML tables as well as XSL for formatting. The new interface Ontoprise's Ontobroker gives users access to a powerful reasoning engine while modeling and while using ontologies within MS Office. [3]

SemTalk models give context to keywords. The Visio editor enables a wide range of users to use and understand models. The Visio editor helps to make modeling as simple and inexpensive as creating HTML web pages. This is a critical factor if the potential of the Semantic Web is to be achieved.

The addition of process modeling to the Semantic Web's class models broadens the reach of Semantic Web applications from Quality Management to Process-Oriented Knowledge Management. It also helps to fill the gap between EAI and web-based services or E-Government. Using uniform, consistent, XML-based glossaries enterprises have new ways to share terminology between applications to ensure the meaningful integration of Content Management, Document Management and Data Warehouses solutions. Integrating SemTalk technology into daily work processes improves the acceptance, and thus the usefulness of the models. Finally, and most importantly, adding a process context unleashes the powerful and intelligent information retrieval possibilities offered by the Semantic Web.

References

[1] Berners-Lee,T, Hendler,J. and Lassila, O. A new form of Web content that is meaningful to computers will unleash a revolution of new possibilitiesScientifc American (May 2001)
[2] Fillies,C.; Weichhardt, F.; SemTalk: A RDFS Editor for Visio 2000 Position Paper, ICCS 2001 9th International Conference on Conceptual Structures / Semantic Web Working Symposium (SWWS), Stanford Univ., July-Aug 2001
[3] Staab, S., Studer, R., Schnurr, H.-P., Knowledge Processes and Ontologies. IEEE INTELLIGENT SYSTEMS, 1094-7167/01
[4] Fillies, C., Wood-Albrecht, G., Weichhardt, F., A Pragmatic Application of the Semantic Web Using SemTalk. WWW2002, May 7-11, 2002, Honolulu, Hawaii, USA ACM 1-5811-449-5/02/0005