

INFRAWEBBS CAPABILITY EDITOR – A GRAPHICAL ONTOLOGY-DRIVEN TOOL FOR CREATING CAPABILITIES OF SEMANTIC WEB SERVICES

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Extended Abstract: The current INFRAWEBBS European research project aims at developing ICT framework enabling software and service providers to generate and establish open and extensible development platforms for Web Service applications. One of the concrete project objectives is developing a full-life-cycle software toolset for creating and maintaining Semantic Web Services (SWSs) supporting specific applications based on Web Service Modelling Ontology (WSMO) framework. SWSs are self-contained, self-describing, semantically marked-up software resources that can be published, discovered, composed and executed across the Web in a task driven semi-automatic way. A main part of WSMO-based SWS is service capability – a declarative description of Web service functionality. A formal syntax and semantics for such a description is provided by Web Service Modeling Language (WSML), which is based on different logical formalisms, namely, Description Logics, First-Order Logic and Logic Programming. A WSML description of a Web service capability is represented as a set of complex logical expressions (axioms). The paper describes a specialized user-friendly tool for constructing and editing WSMO-based SWS capabilities. Since the users of that tool are assumed to be SWS providers, which are not the specialists in first-order logic, it is proposed a graphical way for constructing and editing the axioms abstracting away as much as possible from a concrete syntax of logical language used for implementing them.

Our analysis has shown that the main problems arising during axiom creating are associated with using of correct names of concepts, attributes, relations and parameters as well as their types rather than with expressing logical dependences between axiom parts. So the process of constructing logical expressions in the tool is ontology-driven, which means that in each step of this process the user may select only such elements of existing ontologies that are consistent with already constructed part of the axiom. From this point of view the created axiom is always semantically consistent with ontologies used for it construction. After discussing the main design principles of the Editor, its functional architecture is briefly presented. The tool is implemented in Eclipse Graphical Environment Framework and Eclipse Rich Client Platform.

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