SCIENCE*SPRING*DAY

Departamento de Informática

Combining Rules and Ontologies

Knowledge and Information Systems Group

CENTRIA

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2006: MSc from TU Dresden, Germany, and UNL in Computational Logic
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Objectives

The Semantic Web vision is to enrich information available on the Web with data that is accessible and processable in an automatic way.

Our goal is to provide usable efficient tools for building and querying knowledge bases combining ontology languages representing taxonomic knowledge, as already used in the Semantic Web, together with non-monotonic rules, that add the possibility of expressing defaults, constraints, and exceptions. This contributes to a wider use of Semantic Web technologies in real world applications including, among others, ontologies in Biomedicine, such as SNOMED CT.

Methodology

Building on existing work, we develop a theoretical framework that integrates the two differing knowledge representation and reasoning formalisms and develop reasoning procedures for such a combination with a focus on query-answering. We consider particularly the tractable fragments of the ontology language OWL making use of their better computational behavior. The established procedures are going to be implemented and tested in practice.

Expected Results

- An integration of (tractable) ontology languages and non-monotonic rules for a seamless integration of OWL and RIF, the two standards in the ongoing process driven by the W3C.

- Query procedures, in particular, for tractable OWL 2 profiles combined with rules and corresponding tools (plugins) for integration with well-established ontology editors such as Protégé.

Semantic Web

KRS

ERRO. efficient reasoning with rules and ontologies

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