

Departamento de Informática

Updates of Hybrid Knowledge

Knowledge and Information Systems Group



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2007: MSc from
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Objectives

Increasingly many real world applications need to intelligently access, combine and reason with very large amounts of dynamically changing and interconnected information. The currently existing technologies and tools for information storage and retrieval take a *static* perspective, and do not provide support for the dynamics of information present on the Web today. However, dealing with inconsistencies, conflicts and change is essential for advanced new applications on the Web. The objective of this research is to find plausible and practical solutions for automatically updating knowledge originating from different sources and represented in a variety of languages.



Methodology

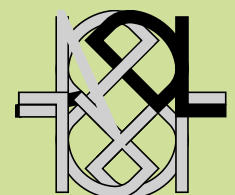
The research is based on Semantic Web technologies and focuses on update support for *hybrid knowledge bases* that combine the expressive features of two distinct knowledge representation paradigms, standardized by the W3C for knowledge representation on the Web: *ontology languages* based on Description Logics and *reasoning rules* based on Logic Programming. Existing work on updates of ontologies and rules, when taken separately, is largely incompatible and needs to be reconciled to achieve our objective. First, use cases and general desirable properties of hybrid updates need to be identified and, subsequently, a hybrid update semantics that enjoys these properties needs to be defined.



Expected Results

On the one hand, a theoretically appealing and declarative framework for hybrid updates is expected in which desirable properties of update operators can be formally proven.

On the other hand, implementations that are useful in real applications are to be developed and tested, along with a number of use cases of the developed hybrid update semantics.



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MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

ERRO.
efficient reasoning with
rules and ontologies