Classification Procedures for Ontological Reasoning

Description

Classification is one of the main reasoning tasks for automated reasoning systems for ontologies. The task refers to computing all sub- and superclass relationships and their arrangement in a class hierarchy within an ontology. The goal of the advertised thesis is the development and the implementation of a novel classification procedure, which is based on the principle of abstraction and refinement. Reasoning via abstraction and refinement does not consider the whole, often large ontology, but a representation of it, called the ‘abstraction’. The abstraction is computed in an iterative fix-point procedure and is step by step refined. This technique offers the possibility of a new classification procedure, where no longer individual sub/ and superclass pairs are tested, but instead one can consider the types of representative elements in the abstraction.

Tasks

- Extension of the existing reasoning system for abstraction and refinement in Java.
- Evaluation of the implementation over existing ontologies and with other systems.

Required Skills

Good implementations skills in Java and knowledge of Semantic Web technologies (OWL, DLs, reasoning, . . . ) are required.

Further thesis offers are available at the institute’s website at http://www.uni-ulm.de/in/ki.html.

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