Implementing Axiom Weakening for SROIQ

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Abstract

Axiom weakening is a technique that allows for a fine-grained repair of inconsistent ontologies. Its main advantage is that it repairs ontologies by making axioms less restrictive rather than by deleting them, employing refinement operators. In this paper, we build on previously introduced axiom weakening for $\mathcal{ALC}$, and show how it can be extended to deal with $\mathcal{SROIQ}$, the expressive and decidable description logic underlying OWL 2 DL. We here focus on describing a prototype implementation computing axiom weakening for $\mathcal{SROIQ}$ and discuss a number of performance and evaluation aspects.

Keywords

Description Logic, Knowledge refinement, Protégé

1. Introduction: Weakening for debugging

Example 1.

2. Preliminaries

3. Axiom Weakening for $\mathcal{ALC}$

Example 2.

Example 3.

Example 4.

4. Extending Weakening to $\mathcal{SROIQ}$

Example 5.

Example 6.

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