Using OWL ontologies for making decisions in knowledge-based systems

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Abstract

Recent developments within the area of Semantic Web have produced a series of languages for knowledge representation and tools for knowledge manipulation and reasoning. We will present the usage of semantic web knowledge representation formalism (OWL) in combination with general purpose reasoning for building a medical expert system. A methodology for formalizing procedural knowledge using OWL semantics is presented and compared with the traditional rule-based expert systems approach. Furthermore, some ideas of upgrading the approach with probabilistic reasoning are explored. The approach is illustrated by the example of the knowledge base construction for decision support tasks in the heart failure domain which was exploited in FP6 HEARTFAID project.