

Combining Instance-Based and Reasoning-Based Approaches for Ontology Matching

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Abstract : Due to the increasing number of sources of information available on the web and their distribution and heterogeneity, ontology alignment became a very important and inevitable problem to ensure semantic interoperability. Instance-based ontology alignment is based on the comparison of the extensions of concepts; and represents a very promising technique to find semantic correspondences between entities of different ontologies. In practice, two situations may arise: ontologies that share many common instances and ontologies that share few or do not share common instances. In this paper, we describe an approach to manage the latter case. This approach exploits the reasoning on ontologies in order to create a corpus of common instances. We show that it is theoretically powerful because it is based on description logics and very useful in practice. We present the experimental results obtained by running our approach on ontologies of OAEI 2012 benchmark test. The results show the performance of our approach.

Keywords : description logic inference, instance-based ontology alignment, semantic interoperability, semantic web

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