Optimizing the Computation of a Possibilistic Heuristic to Test OWL 2 SubClassOf Axioms Against RDF Data*

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Abstract. The growth of the Semantic Web requires various tools to manage data, make them available to all and use them for a wide range of applications. Among these areas of research, Ontology enrichment took an important place where many contributions provides solutions using AI, reasoners, ... The discovery of OWL 2 Axioms is one of the tasks of Ontology Enrichment domain. To this end, we proposed a possibilistic framework to enrich ontologies with OWL 2 Axioms extraction using an evolutionist approach. In the context of this approach, the assessment of this type of axiom involves a significant computational cost, especially in terms of computation time. In this paper, we develop an optimisation of this possibilistic heuristic approach for the OWL 2 SubClassOf axioms assessment in particular for exception extraction. We will see how our approach is suitable to the previous one and lead a comparative analysis. Finally, we will investigate all the perspectives of such approach, especially concerning more complex forms of the same axioms.

Keywords: Knowledge Graphs · OWL 2 Axioms · Ontology Enrichment

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