Generating Query Patterns from Ontology Matching: Application in a Semantic Web Querying Interface based in Patterns

SPARQL is the standard language for querying linked data sources [1]. However, SPARQL is not the most suitable query language for final (or not expert) users interested on querying these sources [2]. The Swip system [3] has been proposed with the aim of hiding the complexity of SPARQL. The approach is based on a mechanism allowing users to express queries in sentences in natural language. SWIP selects pre-written query patterns, and instanciates them with regard to a syntactic analysis of the initial query. Several possible interpretation of the queries are shown to the user. The user then selects the query he/ she is interested in.

One of the main issues in the SWIP approach is that for each data source one wants to query, the corresponding query pattern has to be built. For the time being, query patterns are manually generated. Considering that query patterns are defined from the ontologies describing the data set to be queried, one direction for automating the generation of query patterns is to exploit ontology matching approaches.

Ontology matching is the task of finding correspondences that link concepts, properties or instances between two ontologies [4,5]. Different approaches have been proposed for performing this task. They can be classified along the features in the ontologies (labels, structures, instances, semantics) they take into account or with regard to the kind of disciplines they belong to (e.g., statistics, combinatorial, semantics, linguistics, machine learning, or data analysis).

The aim of this master is to exploit the different ontology matching-based approaches as a way for automating the process of query pattern building. The idea behind it is to find semantic correspondences between ontologies, from which previous query graph patterns have been defined, and the ontologies describing the data sources. In this way, query patterns can be specified from the alignments. The proposed approach will be integrated into the SWIP system.

References

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