

Toward Better Debugging Support on Extended SPARQL queries with On-the-fly Ontology Mapping Generation

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Abstract. SPARQLoid is an extended syntax of SPAQL to utilize reliability degrees in weighted ontology mappings as well as some controls of priorities to be searched based on the weights associated to the mappings. In this paper, we demonstrate a debugging support system for the use of such an extended SPARQL queries.

1 Introduction

SPARQLoid[3] extends a functionality to SPARQL queries for utilizing ontology mappings on the queries as well as the reliability degrees that are often supplied as “weights” [2] in the mappings.

Here, we consider the case that a user is going to write and execute a SPARQLoid query shown in the above Listing with a certain ontology mapping.

```
1: PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2: PREFIX own: <http://example/ownOntology/>
3: SELECT DISTINCT ?person ?name
4: WHERE {
5:   ?person rdf:type own:student .
6:   ?person own:belong own:ShizuokaUniversity .
7:   ?person own:hasName ?name .
8:   THRESHOLD { own:student >= 0.6 , own:hasName >= 0.4 }
9:   CRITERIA ?c { ( ( own:student ) * 60
10:  + ( own:hasName ) * 40 ) }
11:  RANKING ?score { ?c }
12: } limit 100
```

On SPARQLoid, users are allowed to make use of ontology mappings as well as make some filterings based on the reliability degrees of the associated ontology mapping data.

For example, on the above SPARQLoid query, the THRESHOLD is set and it means that the confidence value for *own : student* should be equal or higher than 0.6, and the results of *?person* will be some values associated with the mapped data such as *cs13000*. The same thresholding will be applied for *own : hasName* and *?name* will be *NakoOkuhama* and *70310000*, for example. When the user is going to obtain the names of specified students such

as NakoOkuhama for the values of $?person$, then the user should set 0.4 to THRESHOLD for $own : hasName$, set the weight for $hasStudentID$ to 0.2, $hasFullName$ to 0.6, respectively. If we know the entire mappings and data associated with them, we could specify appropriate threshold values. However, such ontology mapping-specific values cannot be easily adjusted in case there are huge amount of mappings in the specified ontology mapping.

2 The Debugging Support System

We are implementing a query coding and debugging support system which is an extension of our previously implemented system[1]. The structure of the system is shown in Figure 1. Our system includes an “on-the-fly” ontology matcher to evaluate the used ontology mappings and suggests which mappings will be used in the query. Furthermore, the on-the-fly matcher can also be used to interactively add one-time mappings that could produce more instances in the results of the specified query, as well as adjusting weights of these mappings.

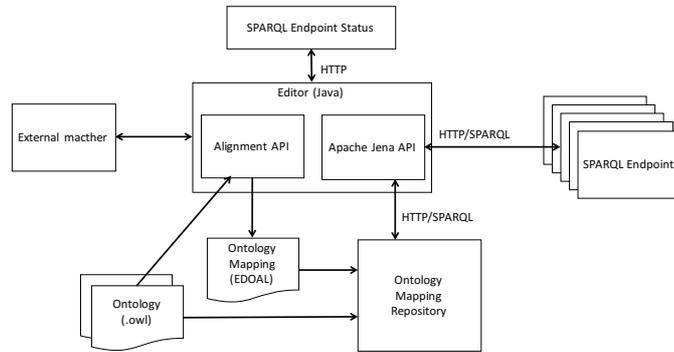


Fig. 1. Abstract System Configuration

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