

Unified Search of Linked Data on the Web

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Searching for information on the Web is increasingly difficult because of its enormous growth. To make matters worse, most of the data published on the Web is in unstructured format. However, more and more structured data is being published, which is also evident from the emergence of unifying initiatives like Linked Data. Structured data enable us to make web applications allowing users to search for information more comfortably. But querying this type of data is not a trivial task.

Nowadays, there are various structured data sources, but only few search engines are able to search in them utilizing the full power of the provided semantics. The majority of the search engines search for information using keywords which may not always give the users the results they desire. To utilize the full power of the structured data a special query language, like SPARQL, has to be used. However, queries in this language are not easily constructible for majority of standard users.

We would like to change this fact by creating complex search engine which could understand a pseudo-natural language of humans. User just types his request to the interface. Interface sends his query to the server and query will be transformed to SPARQL language. This SPARQL query will be executed on an ontological database.

The most difficult step in this process is the transformation mechanism which transforms user defined query to SPARQL. This is not a trivial task and we are now considering two simplifications:

1. User has a skeleton which will guide him through writing of a valid query. This is simple way for transforming query but user is limited in construction query structure.
2. We will use some natural language processor (e.g. Stanford CoreNLP) which can help our search engine to understand what the user wants. This is easier for the user but it is more difficult to transform the query to SPARQL.

After receiving the response from semantic database the user will be able to edit the way how our constructor understands and reproduces the query. This will give us valuable feedback about the correctness of the transformation.

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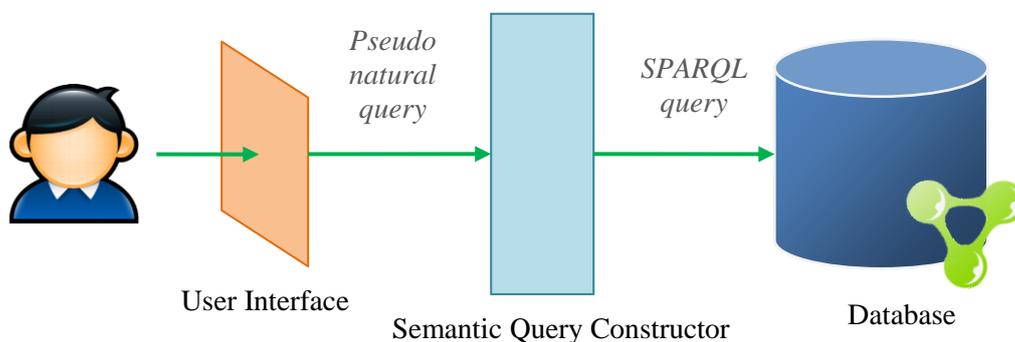


Figure 1. Schema of transformation from pseudo natural language to SPARQL query

We would like to create combination of the two approaches described before by using suggestions. While the user types his query, suggestions will be shown next to the search box. The user will be able to select a query from the list or refine it and therefore we will guide him in writing a query which our constructor can easily understand and transform it to a SPARQL query. Constructor will then use a natural language processor to understand the terms in the query.

We will evaluate our method in the domain of scientific articles, authors and other parts of ACM, Springer and other digital libraries.

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