

Graphically Querying RDF Using RDF-GL

Frederik Hogenboom, Viorel Milea, Flavius Frasinca, and Uzay Kaymak
{fhogenboom,milea,frasinca,kaymak}@ese.eur.nl

Econometric Institute
Erasmus University Rotterdam
PO Box 1738, NL-3000 DR
Rotterdam, the Netherlands

In today's data-driven world, we observe an ever-increasing need for information, which fuels the importance of the ability to query large databases quickly and efficiently. For a large share, this growing need is addressed by tools and languages aimed at performing complex queries on distributed data. However, the intuitiveness of designing such complex queries has only been addressed to a limited extent, making such tools available solely for technical users.

The realm of such tools, aimed at the intuitiveness of query design, though rather limited, presents some interesting applications. For example, several Graphical Query Languages (GQLs) enable users to create queries only by arranging and connecting symbols on a virtual canvas. These languages are built on top of existing textual query languages, but abstract away from difficult syntax. Hence, with GQLs, complete knowledge of a text-based query language is not necessary, as these languages mainly focus on intuitiveness of use. It is aimed for that a GQL covers as much of its textual equivalent, while maintaining usability.

At the current moment, much research is being done in the field of knowledge representation, and more specifically in the context of Web-based applications. New standards are being developed for this purpose under a common denominator - the Semantic Web. One of the state-of-the-art languages put forward by this initiative is the Resource Description Framework (RDF). The language enables representations centered around the meaning of data, rather than the presentation hereof, and allows the inference of implicit knowledge from explicitly modeled data. The state-of-the-art query language for RDF is SPARQL, which has recently been updated to SPARQL 1.1.

Graphical query languages have already been developed for different types of relational representations, such as XML, but no SPARQL-based GQL is available yet for querying RDF models. Therefore, we propose such a GQL for RDF, RDF-GL, which is based on SPARQL (i.e., not on SPARQL 1.1). RDF-GL is the first graphical query language

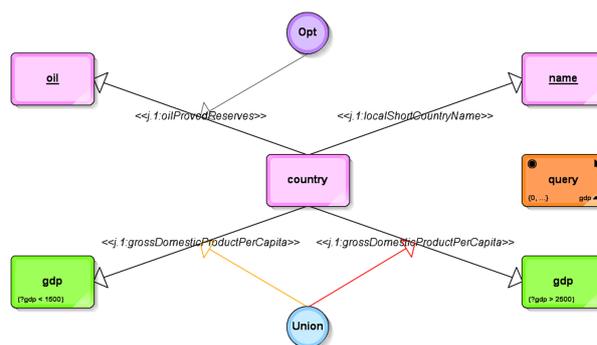


Figure 1: A typical RDF-GL query

based on SPARQL, designed for RDF. The focus of the language is on SPARQL SELECT queries. Although RDF-GL can handle almost every SELECT query, it currently offers no support for FROM, FROM NAMED and GRAPH elements. However, the design of RDF-GL allows for extensions, and this should form the main focus of future research. Figure 1 depicts a typical RDF-GL query, which contains all basic constructs, i.e., various types of boxes, circles, and arrows.

In his talk, Frederik Hogenboom, PhD student at the Erasmus University Rotterdam, will be focusing on several aspects of RDF-GL. First, Frederik Hogenboom will present the main constructs of RDF-GL. Then, the subset of SPARQL covered by the language will be discussed, as well as a mapping from SPARQL to RDF-GL and vice-versa. The work presented here follows from a recently published book chapter [1].

References

- [1] Frederik Hogenboom, Viorel Milea, Flavius Frasinca, and Uzay Kaymak. *Advanced Information and Knowledge Processing*, chapter RDF-GL: A SPARQL-Based Graphical Query Language for RDF, pages 87–116. *Emergent Web Intelligence: Advanced Information Retrieval*. Springer London, 2010.