

Like Breadcrumbs in the Forest: a Tool for Semantic Exploratory Search

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ABSTRACT

The recent explosion of freely available RDF datasets on the Web calls for new tools and techniques for semantic-enabled exploratory browsing. We present ENT, an HTML5-based tool that guides the user through the navigation of RDF graphs avoiding the visualization of information resulting irrelevant for the exploratory task. Thanks to a hypertree-based visualization of the data-space, the user has a clear picture both of his/her navigation path and of the information he/she may discover.

Categories and Subject Descriptors

H.5.2 [User Interfaces]: Graphical user interfaces (GUI)

General Terms

Design

Keywords

graph visualization, exploratory search, DBpedia, user interfaces

1. MOTIVATION

Thanks to the recent Linked Data initiative, several shared, open and linked RDF-datasets have become available on the Web, giving the possibilities to expert users to explore and query a huge and distributed knowledge base. In recent years there has been some attempt to make information contained in this huge knowledge base also available to non-expert users through different forms of visualization. The graph-based structure of datasets in the Semantic Web allows a natural visualization and browsing of the formalized information simplifying the implementation of learning and investigating strategies for knowledge acquisition and discovery. Using an *orienteering* behaviour, a user starts from an initial vague idea of what she is looking for and navigates through the information space. Effective user interfaces play a crucial role to provide a satisfactory user experience during an exploratory browsing. There are two main trends in visualizing and exploring RDF datasets [1]: by browsing a labelled oriented graph or by displaying RDF properties as browsable facets of a node. The main problem of both approaches is to filter information which is not relevant for the

exploratory task. If we visualize all the triples together with their connections we have a huge unreadable representation of the underlying knowledge [4]. In fact, RDF triples are conceived to represent information for machine-to-machine interaction. A lot of information triplified in datasets is very useful in many automated computational tasks (e.g., web service interaction) but it is completely useless from a human perspective during an exploratory search [2]. The results we present in this paper are part of an ongoing research on RDF graph visualization for exploratory browsing. Here, we propose a new way of visualizing RDF datasets, based on exploratory search principles exploiting hypertree-based structures. Our aim is not to present the *entire* RDF datasets to the users, indeed we want to show to the users only *relevant* information in the dataset, so allowing a fruitful browsing of knowledge bases.

2. THE SYSTEM

In the following we describe our tool ENT: an HTML5-based application for exploratory search in knowledge graphs. The

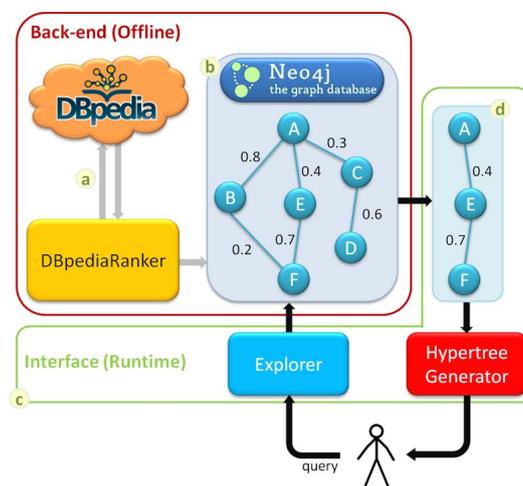


Figure 1: The functional architecture of the system.

functional architecture of the system is depicted in Figure 1. *DBpediaRanker* [3] queries the *DBpedia* dataset, via its SPARQL endpoint, computing for each pair of resources a similarity value¹ (see (a) in Figure 1). The output of *DBpedia*

¹The interested reader can refer to [3] for a comprehensive

