Description Logic in Semantics Querying

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Motivation

In this paper we describe an inductive methodology for building an RDF (Resource Description Framework) [1] schema. This schema describes the semantic content starting from a relational database. Our approach uses a terminological model (implemented in the BACK system) as an intermediate conceptual representation. Based on XQuery language [3] we show how the use of semantics content of the relational database in the body of queries can improve accessing data of the database: Specialisation/Generalisation relationships expressed in the RDF schema between the relations of the relational database are exploited in the treatment of queries. Two types of queries are introduced: (1) semantics queries, that concerns only the semantics content of the database, help users to understand better the semantic of data belonging to the database; (2) data queries, that concerns the research of data over the database. Data queries can include in their bodies semantics research over the RDF schema. In this case data queries are considered semantically correct before accessing data. A prototype has been developed in order to show the results of this work.

1 Methodology

Our approach can be viewed as reverse engineering of a relational database [4] over the Web. Two documents are extracted: (1) the first document describes the structure of the relational database; (2) the second document describes the structure of the semantic content of the relational database. These two documents are expressed with the formalism of the DTD- XML [2]. To access data in the relational database the XQuery language of XML is implemented and used in this work. Users queries exploit the semantic of the database in order to obtain specific responses of its queries.Our approach consists of several steps: knowledge acquisition, relation classification, inclusion dependencies inferences between relations, BACK schema [5] generation and translation into an RDF schema

2 Semantics querying

The query language choosed in this work in order to select data from database is the XQuery language [3]. XQuery is designed by the W3C XML Query Working Group. XQuery is a query language for XML. It permits to retrieve and interpret informations from diverse XML documents. In this paper XQuery language is choosed in order to retrieve semantics and data from respectively RDF schema and relational database.

References

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