Resolving Schema and Value Heterogeneities for XML Web Querying

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1. Demo Description

We demonstrate a semantic integration query system for heterogeneous data. We use diverse land use coding systems to illustrate our solution for semantic heterogeneity problems at the schema and value levels. Our demonstration consists of an enhanced Internet XML DBMS and a tool used to create mappings between ontologies and local data sets.

We added semantic resolution facilities to the Niagara Internet DBMS (Naughton et al., 2000). Our interface allows a user to select minimal metadata (to determine relevant data sets) and ontology values to pose a query (Figure 1). Our automated system resolves queries in which a predicate ranges over multiple data sets. We generate specific local subqueries using agreement files provided by an ontology mapping tool. We also process client-side results to create aggregate statistics and spatial displays. Our application and system are further explained in (Wiegand et al., 2003).

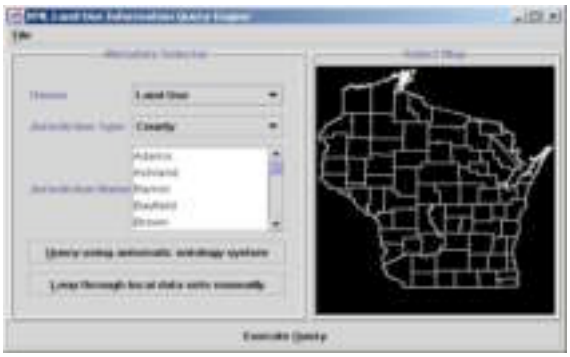

Figure 1. User interface

2. Ontology Mapping

We demonstrate our tool in which a domain expert indicates mappings between the ontologies and each local data set (Figure 2). At the value level, our method captures the cardinality of the mapping between the ontology value and the local code. XML agreement files are automatically generated. Ontology mappings are further explained in (Cruz et al., 2002).

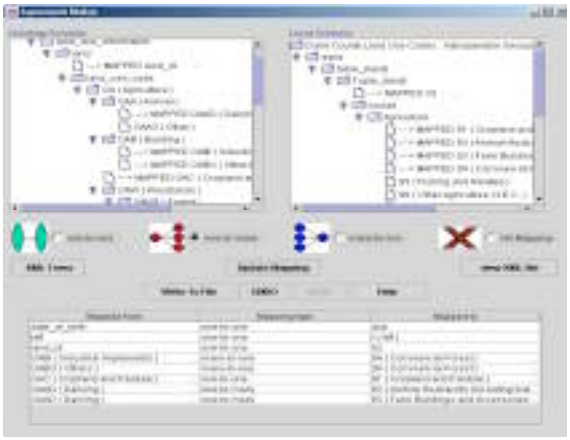

Figure 2. Tool to create an agreement file

3. Acknowledgement

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4. References

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