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Abstract

Resolving semantic heterogeneity is still a challenging issue in data integration systems; but it can be strongly fixed when using ontology in an a priori approach where local ontology concepts are linked with shared ontology prior to populating data in corresponding sources. In this paper, we describe a defying context where local source is described by a fuzzy OWL ontology within an integration system using an a priori approach to achieve automatic integration for new data sources. We propose a conceptual framework starting by shared ontology and producing a target fuzzy Relational Database for every ontology-based local source participating in the integration system. Assuming shared ontology is a consensus in a given domain, this framework provides various contributions. It aims to solve ahead the problem of heterogeneous data sources because the local ontology that references the shared ontology is used to generate the conceptual data model for the target fuzzy Relational Database. To do this, it extends the a priori approach to deal with uncertainty which is a very common requirement in real world applications. Its storage process may be run on most of popular RDBMS. It is using a fuzzy OWL which represents most of fuzzy ontology constructs.

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Index Terms

Computer Science Fuzzy Systems

Keywords

Data integration systems database description logic ontology fuzzy logic.