

Connecting Databases and Ontologies: A Data Quality Perspective

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Abstract. Taking a database-theoretic perspective on the problem of mapping relational databases to ontologies, we come up with a new mapping language that is inspired by the semijoin algebra. We illustrate the user friendliness of the mapping language by examples, and prove the decidability of some important reasoning problems by embedding our mapping language into the guarded fragment of first-order logic. We argue that these reasoning problems are relevant in data quality explorations.

Keywords: data quality · guarded fragment · ontology-based data access · OBDA · semijoin algebra