

Ontology-based Data Access and Integration: Beyond Relational Data

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Abstract. *Ontology-based data access and integration (OBDA/I) are by now well-established paradigms in which users are provided access to one or more data sources through a conceptual view that abstracts away details about how the data is organized and stored. This conceptual view is realized through an ontology that is connected to the data sources through declarative mappings. In the last decade, OBDA/I have been studied extensively in the prominent case where the data sources being queried are standard relational databases. Advanced tools are available that support query processing in OBDA/I systems, and this paradigm has been applied in many real-world scenarios in industry and in public administrations. However, the need has emerged for extending it to novel types of data, such as temporal, streaming, or tree-structured data. In this talk, we first overview the basic principles underlying OBDA/I by relying on significant industrial use cases. We then discuss the challenges that extensions beyond relational data pose for OBDA/I, and we present recent developments on how to incorporate such novel forms of data into state-of-the-art systems. The techniques we present are currently being incorporated into Ontop, an OBDA system developed at the Free University of Bozen-Bolzano.*