

Certain Conjunctive Query Answering in SQL

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Abstract

An uncertain database **db** is defined as a database in which distinct tuples of the same relation can agree on their primary key. A repair (or possible world) of **db** is then obtained by selecting a maximal number of tuples without ever selecting two distinct tuples of the same relation that agree on their primary key. Given a query Q on **db**, the *certain answer* is the intersection of the answers to Q on all repairs. Recently, a syntactic characterization was obtained of the class of acyclic self-join-free conjunctive queries for which certain answers are definable by a first-order formula, called certain first-order rewriting [2].

In this talk, we investigate the nesting and alternation of quantifiers in certain first-order rewritings, and propose two syntactic simplification techniques. We then experimentally verify whether these syntactic simplifications result in lower execution times on real-life SQL databases, and study the influence of several parameters using synthetic SQL databases.

This talk is based on a recent paper by Decan, Pijcke, and Wijsen [1].

References

- [1] Alexandre Decan, Fabian Pijcke, and Jef Wijsen, *Certain conjunctive query answering in SQL*, SUM (Eyke Hüllermeier, Sebastian Link, Thomas Fober, and Bernhard Seeger, eds.), Lecture Notes in Computer Science, vol. 7520, Springer, 2012, pp. 154–167.
- [2] Jef Wijsen, *Certain conjunctive query answering in first-order logic*, ACM Trans. Database Syst. **37** (2012), no. 2, 9.