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Database query languages and functional logic programming. (English) Zbl 1108.68026
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Summary: Functional logic programming is a paradigm which integrates functional and logic programming. It is based on the use of rewriting rules for defining programs, and rewriting for goal solving. In this context, goals, usually, consist of equality (and, sometimes, inequality) constraints, which are solved in order to obtain answers, represented by means of substitutions. On the other hand, database programming languages involve a data model, a data definition language and, finally, a query language against the data defined according to the data model. To use functional logic programming as a database programming language, (1) we will propose a data model involving the main features adopted from functional logic programming (for instance, handling of partial and infinite data), (2) we will use conditional rewriting rules as data definition language, and finally, (3) we will deal with equality and inequality constraints as query language. Moreover, as most database systems, (4) we will propose an extended relational calculus and algebra, which can be used as alternative query languages in this framework. Finally, (5) we will prove that three alternative query languages are equivalent.

MSC:

- 68N17 Logic programming
- 68N18 Functional programming and lambda calculus
- 68P15 Database theory
- 68Q42 Grammars and rewriting systems

Keywords:

deductive databases

Software:

BABEL; ML ; TOY

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