Abstract

Generalized queries are defined as sets of clauses in implication form. They cover several tasks of practical importance for database maintenance such as answering positive queries, computing database completions and integrity constraints checking. We address the issue of answering generalized queries under the minimal model semantics for the class of disjunctive deductive databases (DDDBs). The advanced approach is based on having the query induce an order on the models returned by a sound and complete minimal model generating procedure. We consider answers that are true in *all* and those that are true in *some* minimal models of the theory. We address the issue of answering positive queries through the construction of the minimal model state of the DDDB, using a minimal model generating procedure. The refinements allowed by the procedure include isolating a minimal component of a disjunctive answer, the specification of possible updates to the theory to enable the derivability of certain queries and deciding the monotonicity properties of answers to different classes of queries.

Keywords

- Deductive databases;
- Minimal model generation;
- Query answering;
- Integrity constraints;
- Nonmonotonic reasoning