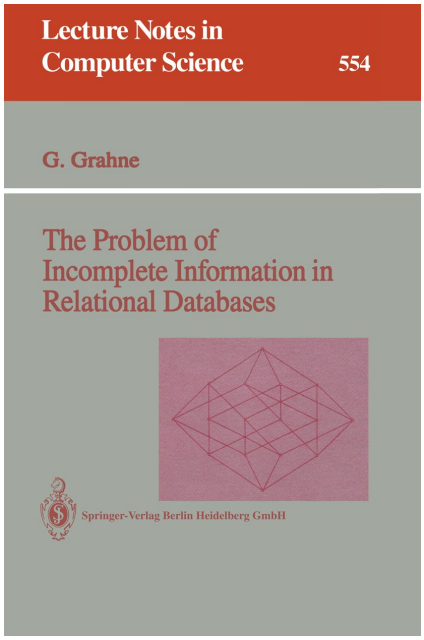


1991, VIII, 164 p.



G. **Grahne**

# The Problem of Incomplete Information in Relational Databases

Series: Lecture Notes in Computer Science, Vol. 554

In a relational database the information is recorded as rows in tables. However, in many practical situations the available information is incomplete and the values for some columns are missing. Yet few existing database management systems allow the user to enter null values in the database. This monograph analyses the problems raised by allowing null values in relational databases. The analysis covers semantical, syntactical, and computational aspects. Algorithms for query evaluation, dependency enforcement and updates in the presence of null values are also given. The analysis of the computational complexity of the algorithms suggests that from a practical point of view the database should be stored as Horn tables, which are generalizations of ordinary relations, allowing null values and Horn clause-like restrictions on these null values. Horn tables efficiently support a large class of queries, dependencies and updates.