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21-62  
ABS only  
N91-7137-1 P-1

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RELATION BETWEEN UNCERTAINTY  
REPRESENTATION IN DATA BASES AND RULE-BASED SYSTEMS

Abstract

Uncertainty in a rule (if A, then B) arises from its deductive validity, the preciseness of the antecedent A, and the proximity of A to the data to which it is matched. The latter two causes of uncertainty are both related to the data and its representation. Uncertainty in data represented in data bases takes the form of null values, range values, nonatomic values (e.g., embedded relations), and various representations based on fuzzy set theory. There are similarities between the instantiation of the terms in a query and the action of matching rule antecedents. The latter is further complicated by the unification process, which, in some ways, resembles evaluation of transitive queries. These and other correspondences (and differences) are examined.