An Attribute-Rule Dependency Matrix Method and its Java Implementation for Rule-Based Expert Systems Verification

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Abstract
Verification of knowledge bases is an important aspect of the development procedure of rule-based expert systems. The objective of verification is to assure producing a successful intelligent computer system that reaches correct recommendations. This research introduces an attribute-rule dependency matrix verification method and its associated Java implementation program. The method can help knowledge engineers and domain experts in the automated verification process of rule-based knowledge bases for both consistency and completeness. The method can also help in the documentation of expert systems' facts and If-Then rules. A wide variety of knowledge bases has been successfully debugged and analyzed using the introduced verification method.

References

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**Index Terms**

Computer Science  
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**Keywords**

Expert System  
Rule-Based Expert System

Knowledge Base Verification  
Rule Consistency

Rule Completeness  
Java Programming Language