Rule-Based System for Conformance Testing

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My goal is to apply rule-based system for conformance testing. This paper will discuss the following:
- the basic for conformance testing,
- the test notation TTCN (Tree and Tabular Combined Notations),
- the fundamentals of rule-based system
- how the TTCN and the rule-based system can be related to each other.

Conformance testing is the assessment process to determine the extent to which an implementation of an OSI (Open System Interconnection) standard conforms to the requirements stated in that standard. Conformance testing has an abstract notation, called TTCN (Tree and Tabular Combined Notations). The TTCN is designed for expressing all attribute of an abstract test suite. The syntax and semantics of TTCN are both tightly coupled to the international standards for conformance testing. A conformance suite in TTCN consists of a number of test cases. One of the main parts deals with dynamic, containing the actual description of the test case.

I present the components of TTCN dynamic behavior tree as a set of rules. These components include Arcs which represent input and output, Nodes represent the determination of Arc and f (the relationship between the components). I develop a test case tree definition, a path matrix and rules for test cases, and I attempt to introduce new measures for uncertainty in conformance testing, threshold level and confidence factor of the output for any rule.

Finally the conversion of the dynamic behavior tree to rule-based system is explained. The above listened results are demonstrated on the INRES protocol.