

On ALSV Rules Inference Engine Design^{*}

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Abstract. The paper provides a proposal of decision rules formalization based on the so-called Attribute Logic with Set Values over Finite Domains (ALSV(FD)). The ALSV calculus extends the classic Relational Database knowledge representation capabilities with complex attribute description, allow for the representation and inference with non-atomic values (set). Based on ALSV an expressive rule language called *XTT*² (eXtended Tabular Trees) is proposed. It is a development of the XTT language. The goal of the language is to allow for visual system design with formal verification during the design.

In the paper the basic introduction to ALSV(FD) is given in the first section. The the rule language formulation is discussed in the second section. Then in the third section an algebraic text-based rule representation is presented. Using this representation a visual XTT tables are described; they form a structured rule base. Inference on top of this rulebase is discussed, with the design of a hybrid inference engine given in the fifth section. The engine provides a practical integration of a rule-based application core with a Java-based application environment. The future work, including implementation considerations as well as possible extensions of the rule language is provided.

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