

## Association Rules: An Axiomatic Approach

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### Abstract:

We consider a reasoner who generates predictions using association rules, each of which can be viewed as a conditional statement regarding observed binary variables  $x$ , and making a prediction about another binary variable,  $y$ . Rules provide support to their predictions, which is aggregated in an additive way. The weight of each rule depends on the database of observations, and is aggregated over all observations in which the rule applied. We provide axioms on a reasoner, who makes predictions given databases of observations, who can be modeled as following this rule-based prediction. Generalizations and applications are discussed.