Concordant rules: a novel approach for the evaluation of the interest of the associative rules

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Abstract:

The aim of this work is the determination of indexes in order to appraise the interest of a rule considered in its evolutionary aspect. We have to treat these rules as operational elements in the determination of heuristic indexes that allow to use the rules in innovative way, preserving the a priori knowledge and increasing it through a procedure that analyse the same rules like absolute data and considering the space-temporal aspect.

We propose to identify a rule in its temporal evolution, by exploiting the presence of three ways data. By using them in the business surveys, considered in different periods (weekly, monthly, annually), we can choose a rule or better a typology of rule, that we'll call *Concordant Rule*. It is a particular rule having the same antecedent and consequent and we'll follow its evolution in the time.

This allows to operate in new and different ways with the associative rules, to follow the evolution of a rule, to analyse the different levels of support and confidence, structurally tied up to the cyclicity and economic temporality.

Formally the definition of these indexes embraces the typical statistical structure of a variability measure that we will define *Variability Index*, besides the measures *Average* and *Total Interest*, derived from concepts defined in the *Information Theory*. Those indexes are measures of relative entropy of the information value in a concordant rule. The *Index of Concentration* finally exploits the *Index of Simpson*, in order to define a measure that expresses the concentration of the relative knowledge.

References

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