

Using Jaynes' MaxEnt Principle in Non-Bayesian Weights of Evidence

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Abstract

Bayesian mathematical model is the oldest method for modelling subjective degree of belief. If we have probabilistic measures with unknown values, then we must choose a different and appropriate model. The belief functions are a bridge between various models handling different forms of uncertainty. The conjunctive rule of Bayes builds a new set of a posteriori probability when two independent and accepted sets of random variable make inference. When two pieces of evidence are accepted with unknown values, the Dempster-Shafer's rule suggests a model for fusion of different degree of belief. In this paper we want to submit the use of MaxEnt principle for modelling the belief. Dealing with non-Bayesian sets, in which the piece of evidence represents the belief instead of the knowledge, the MaxEnt principle gives a tool to reduce the number of subsets representing the frame of discernment. The fusion of a set of focal elements with the set of max entropy cause a Bayesian approximation reducing mass function to a probabilistic distribution..

References:

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