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Title: Stochastic Frames

Abstract:

In this relatively programmatic paper, we present a stochastic version of frame theory based upon the assumption that the functionality of attributes makes it possible to consider the range of an attribute as a probability distribution over values. After introducing a version of stochastic frames, the talk is split into two sections. First, we consider the advantages of applications of stochastic frames to gradable adjectives, prototypes, and lexical ambiguity. In each case, we argue that combining probability theory with frames yields the ability to represent both (reasoning with) non-categorical knowledge/belief, and constraints between attributes and values. Second, we discuss some possible extensions to stochastic frames and we consider some of the problems that making frames stochastic generates. For example, we consider the pros and cons of letting attributes themselves feature in a frame with some probability and we discuss the extent to which two agents whose frames are characterized by different probability distributions can be said to have the same concept.