# Reasoning with Probabilistic Logics

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## Abstract

The interest in the combination of probability with logics for modeling the world has rapidly increased in the last few years. One of the most effective approaches is the Distribution Semantics which was adopted by many logic programming languages and in Descripion Logics. In this paper, we illustrate the work we have done in this research field by presenting a probabilistic semantics for description logics and reasoning and learning algorithms. In particular, we present in detail the system TRILL$^P$, which computes the probability of queries w.r.t. probabilistic knowledge bases, which has been implemented in Prolog.

*KEYWORDS*: Probabilistic Description Logics, Probabilistic Reasoning, Tableau, Prolog, Semantic Web.