# Decidability of a conditional probability logic

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We prove decidability of a logic which enriches propositional calculus with the following classes of probabilistic operators which are applied to propositional formulas: $P_{\geq s}(\alpha)$, $CP_{\approx 1}(\alpha, \beta)$, $CP_{=s}(\alpha, \beta)$ and $CP_{\geq s}(\alpha, \beta)$, with the intended meaning "the probability of $\alpha$ is at least $s$", "probabilities of $\alpha \wedge \beta$ and $\beta$ are almost the same" "the conditional probability of $\alpha$ given $\beta$ is $s$", and "the conditional probability of $\alpha$ given $\beta$ is at least $s$", respectively. Possible-world semantics with a probability measure on sets of worlds is defined. The range of the probability measure is chosen to be the unit interval of a recursive nonarchimedean field, making it possible to use the operator $CP_{\approx 1}$ to model default reasoning.