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Probabilistic Default Reasoning with Conditional Constraints

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Abstract

We propose a combination of probabilistic reasoning from conditional constraints with approaches to default reasoning from conditional knowledge bases. In detail, we generalize the notions of Pearl's entailment in system Z, Lehmann's lexicographic entailment, and Geffner's conditional entailment to conditional constraints. We give some examples that show that the new notions of z-, lexicographic, and conditional entailment have similar properties like their classical counterparts. Moreover, we show that the new notions of z-, lexicographic, and conditional entailment are proper generalizations of both their classical counterparts and the classical notion of logical entailment for conditional constraints.

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