On the Logical Specification of Probabilistic Transition Models

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Abstract

We investigate the requirements for specifying the behaviors of actions in a stochastic domain. That is, we propose how to write sentences in a logical language to capture a model of probabilistic transitions due to the execution of actions of some agent. We propose a definition for 'proper' and 'full' probabilistic transition model specifications and suggest which assumptions can and perhaps should be made about such specifications to make them more parsimonious. Making a priori or default assumptions about the nature of transitions is useful when a given transition model is not fully specified. Two default assumption approaches will be considered.