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An Infinitary Probability Logic for Type Spaces

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Abstract

Type spaces in the sense of Harsanyi (1967/68) can be considered as the probabilistic analog of Kripke structures. By an infinitary propositional language with additional operators "individual i assigns probability at least α to" and infinitary inference rules, we axiomatize the class of (Harsanyi) type spaces. We show that our axiom system is strongly sound and strongly complete. To the best of our knowledge, this is the very first strong completeness theorem for a probability logic of the present kind. The result is proved by constructing a canonical type space.

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