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Probability quantifiers and operators. (English) Zbl 0933.03044

Series in Pure and Applied Mathematics. Belgrade: Vesta Company. iv, 121 p. (1996).

This short monograph extends work by Keisler and others. The first four chapters present an integrated and quite elegant exposition of nonstandard analysis and measure theory, Keisler's logic of probability operators, and logics with integrals and conditional expectations, also introduced by Keisler. Chapter 5 introduces a logic embodying a σ -finite measure in place of Keisler's general probability measure. Chapter 6 presents a logic appropriate to the study of structures with two measures. Chapter 8 introduces a second order probability logic. In chapter 9 we have an intuitionistic logic with probability operators; these operators are general in that they may apply to either classical or intuitionistic logic. Finally, in chapter 10 the notion of cylindric probability algebra is introduced, relating the theory of deductive systems of probability logic to a geometry associated with basic set-theoretic notions. The volume is not easy reading, but presents as full a treatment of logics with probability operators as there is.

Reviewer: [H.E.Kyburg \(Rochester\)](#)

MSC:

- [03C80](#) Logic with extra quantifiers and operators
- [03B48](#) Probability and inductive logic
- [03H05](#) Nonstandard models in mathematics
- [60A10](#) Probabilistic measure theory
- [28E05](#) Nonstandard measure theory
- [60B05](#) Probability measures on topological spaces
- [60A05](#) Axioms; other general questions in probability

Cited in **5** Documents

Keywords:

nonstandard analysis; probability operators; logics with integrals and conditional expectations; Loeb measure; nonstandard measure theory; σ -finite measure; probability measure; second-order probability logic; intuitionistic logic with probability operators; cylindric probability algebra