Bingham, Nick H.

Finite additivity versus countable additivity. (English. French summary) Zbl 1344.60006

J. Électron. Hist. Probab. Stat. 6, No. 1, Article 2, 35 p. (2010).

Summary: The historical background of first countable additivity, and then finite additivity, in probability theory is reviewed. We discuss the work of the most prominent advocate of finite additivity, de Finetti, and also the work of Savage. Both were most noted for their contributions to statistics; our focus here is more from the point of view of probability theory. The problem of measure is then discussed – the possibility of extending a measure to all subsets of a probability space. The theory of gambling is discussed next, as a test case for the relative merits of finite and countable additivity. We then turn to coherence of decision making, where a third candidate presents itself – non-additivity. We next consider the impact of different choices of set-theoretic axioms.

MSC:

60-03 History of probability theory
60-02 Research exposition (monographs, survey articles) pertaining to probability theory
01A60 History of mathematics in the 20th century

Keywords:

finite additivity; countable additivity; Bruno de Finetti; L. J. Savage

Biographic references:

de Finetti, Bruno; Savage, Leonard Jimmie

Full Text: Link EMIS