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Grundbegriffe der Wahrscheinlichkeitsrechnung, by A. Kolmogoroff, Julius Springer, Berlin, 1933, 62 pp.

It is the purpose of this monograph to develop probability theory from a postulational standpoint. For this purpose a probability field is defined as an assemblage with a definite ordering of numbers that satisfy the system of axioms. A brief exposition is given of the construction of such fields and of the manner in which the framework of the postulational system can be related to the applications to phenomena. The addition and multiplication theorems follow at once. Moreover, the theorem of Bayes, concerning whose validity there have been many controversies, is also an almost immediate consequence of the system of postulates, but the reviewer does not think this derivation of the theorem of Bayes settles the old contention relative to the validity of inferring the characteristics of a statistical population from a sample by means of the theorem of Bayes.

Use is made of the Lebesgue theories of measure and of integration. Indeed, it is held that it seemed almost hopeless to deal with the logical foundations of probability without these theories.

The development includes infinite probability fields by means of an additional axiom, distribution functions in space of many dimensions, differentiation and integration of mathematical expectations, and the law of large numbers. This little book seems to the reviewer to be an important contribution directed towards securing a more logical development of probability theory.

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