

be the theory of weakly stationary random fields on a group where the random variables of the field are real or complex valued and it is the indexing parameter set that is a topological group. Although this is not a case of probability "on" a general algebraic structure, the latter enters in an essential way (via stationarity) in the study of the process.

The reader of this review will have guessed by now that the book's mathematical prerequisites go considerably beyond a knowledge of standard measure theory and of advanced probability theory, say at the level of Loève's book. No secret is made of this fact in the Introduction, which expects that the student who wishes to work through the text should have familiarity with the elements of functional analysis (as in the well known book by Hille and Phillips) and topological algebra (as in Neumark's *Normed Rings*). I think that advanced graduate students intending to specialize in abstract probability theory will find this book a very useful text for seminars.

Almost all the topics treated in the book are areas in which active research is still being done, and the difficulties in presenting a logical development of the principal results in a fairly slim volume are many. I, for one, am glad that Professor Grenander has courageously undertaken the task.

YU. V. LINNIK, *Décomposition des lois de probabilités* (translated from the Russian by M. L. Gruel) (Monographies internationales de mathématiques modernes), Gauthier-Villars, Paris, 1962. Fr 55.—vi + 294 pp.

YU. V. LINNIK, *Decomposition of probability distributions* (edited by S. J. Taylor), Oliver and Boyd Ltd., London, 1964. £4/4/0.—239 pp.

Review by E. LUKACS

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One of the most important topics in classical probability theory is the addition of independent random variables, studied since the first quarter of the 18th century. The converse problem, the decomposition of a given random variable into independent summands, is of recent origin and was started by investigations of P. Lévy, A. Ya. Khintchine, H. Cramér, and D. A. Raikov during the late thirties of the present century. The last author raised a number of interesting questions [1] concerning the family of infinitely divisible laws which have no indecomposable components. No appreciable progress was made towards the solution of these problems until the studies of Yu. V. Linnik which were published in the Russian probability journal during the years 1957–1959. In the present monograph, the author gives a systematic and connected account of his investigations.

The theory of decomposition of random variables, often called the arithmetic of distribution functions, deals with problems on the borderline between probability theory and classical analysis. In order to make the presentation self-contained, the author presents in the first chapter a number of important re-