

CONTENTS

	<i>Page</i>
EDITOR'S NOTE	iii
PREFACE	v

I. ELEMENTARY THEORY OF PROBABILITY

§ 1. Axioms	2
§ 2. The relation to experimental data.....	3
§ 3. Notes on terminology.....	5
§ 4. Immediate corollaries of the axioms; conditional probabilities; Theorem of Bayes.....	6
§ 5. Independence	8
§ 6. Conditional probabilities as random variables; Markov chains	12

II. INFINITE PROBABILITY FIELDS

§ 1. Axiom of Continuity.....	14
§ 2. Borel fields of probability.....	16
§ 3. Examples of infinite fields of probability.....	18

III. RANDOM VARIABLES

§ 1. Probability functions	21
§ 2. Definition of random variables and of distribution functions	22
§ 3. Multi-dimensional distribution functions.....	24
§ 4. Probabilities in infinite-dimensional spaces.....	27
§ 5. Equivalent random variables; various kinds of convergence	33

IV. MATHEMATICAL EXPECTATIONS

§ 1. Abstract Lebesgue integrals	37
§ 2. Absolute and conditional mathematical expectations.....	39
§ 3. The Tchebycheff inequality	42
§ 4. Some criteria for convergence.....	43
§ 5. Differentiation and integration of mathematical expectations with respect to a parameter.....	44

V. CONDITIONAL PROBABILITIES AND MATHEMATICAL EXPECTATIONS

§ 1. Conditional probabilities	47
§ 2. Explanation of a Borel paradox	50
§ 3. Conditional probabilities with respect to a random variable	51
§ 4. Conditional mathematical expectations	52

VI. INDEPENDENCE; THE LAW OF LARGE NUMBERS

§ 1. Independence	57
§ 2. Independent random variables	58
§ 3. The Law of Large Numbers	61
§ 4. Notes on the concept of mathematical expectation	64
§ 5. The Strong Law of Large Numbers; convergence of a series	66
APPENDIX—Zero-or-one law in the theory of probability	69
BIBLIOGRAPHY	73
NOTES TO SUPPLEMENTARY BIBLIOGRAPHY	77
SUPPLEMENTARY BIBLIOGRAPHY	81