

Institute of Mathematical Statistics
LECTURE NOTES—MONOGRAPH SERIES

Current Issues
in Statistical Inference:
Essays in Honor of D. Basu

Malay Ghosh and Pramod K. Pathak, Editors

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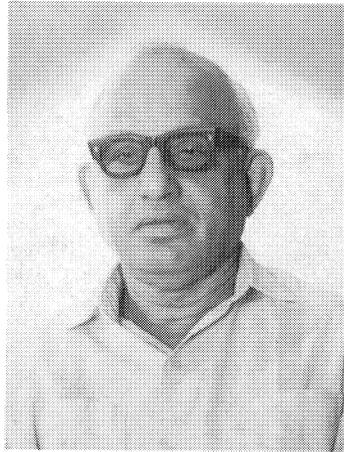
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D. Basu

PREFACE

Dr. D. Basu's pioneering contributions to statistics started at the beginning of the fifties. For about four decades, Dr. Basu, in many of his fundamental writings, has examined critically the foundations of statistical inference, concepts such as information, likelihood, invariance, ancillarity, randomization, fiducial probabilities, logical foundations of survey sampling, and many related concepts. His research has led to some path-breaking results such as independence of ancillary and boundedly complete sufficient statistics, characterization of sufficiency in finite population sampling, the design independence of Bayesian inference procedures in sample surveys, to name a few. His research has influenced several generations of statisticians, and will continue to do so for years to come. Most of Dr. Basu's critical essays are now collected in a Springer volume entitled *Statistical Information and Likelihood*, thanks to the efforts of Professor J.K. Ghosh.

Professor Basu was born on July 5, 1924, in Dacca, now in Bangladesh. He received a Master's Degree in Mathematics from Dacca University around 1945, and taught there briefly from 1947 to 1948. He moved to Calcutta in 1948, where he worked as an actuary with an insurance company for some time. In 1950, he joined the Indian Statistical Institute as a research scholar under Professor C.R. Rao. In 1953, he submitted his Ph.D. thesis to the Calcutta University and went to Berkeley as a Fulbright scholar. His associations with Neyman at Berkeley and with Fisher at the Indian Statistical Institute in 1955 gave him a deep insight into both the Neyman-Pearson theory as well as the Fisherian theory of ancillarity and conditionality. He knew and understood these paradigms better than most of his contemporaries. His critical examination of both the Neyman-Pearsonian and the Fisherian modes of inference eventually forced him to a Bayesian point of view, via the likelihood route. The final conversion to Bayesianism came in January, 1968, when Basu was invited to speak at a Bayesian Session in the Statistics Section of the Indian Science Congress. He confesses that, while preparing for these lectures, he became convinced that Bayesian inference did indeed provide one with a logical resolution of the underlying inconsistencies of both the Neyman-Pearson and the Fisherian theories. Since then, Dr. Basu became an ardent Bayesian and, in many of his foundation papers, pointed out the deficiencies of both the Neyman-Pearsonian and the Fisherian methods.

Professor Basu was on the Faculty of the Indian Statistical Institute for many years. His passion for travel has taken him to universities all over the world as a visitor, e.g. UNC at Chapel Hill, University of Chicago, University of New Mexico, University of Sheffield, University of Adelaide, Iowa State University, to name a few. He was a Professor of Statistics at Florida State

University from 1976 until his retirement in 1986. Throughout his professional career, he has maintained strong ties with the Indian Statistical Institute. Now in his retirement, when he is not abroad, he loves to return to the ISI to look around the classrooms, the flower-beds, and the rose gardens which he so painstakingly helped created during his association with the Institute.

In his fruitful research career spanning nearly four decades, Dr. Basu's emphasis has always been on the foundations and the underlying concepts rather than on the technicalities. In keeping with his philosophy, essays in this festschrift volume, dedicated to Dr. Basu on the occasion of his 65th birthday, place the major emphasis on the foundational issues of statistical inference. Most of the papers in this volume are review articles written by his friends and colleagues in those areas of statistics that have interested Dr. Basu most during his active research career. This monograph differs from other festschrift volumes in yet another respect. It is written in a narrative style which has typified so much of Dr. Basu's own writings in statistics. We believe that this is a fitting tribute to a scientist whose simplicity of exposition has earned him a special place in the evolution of contemporary statistics.

We take this opportunity to thank all the authors of this volume who spent so much time writing and rewriting their articles. We would also like to thank the referees (names arranged alphabetically): J. Berger, A. Bose, G. Casella, R. Christensen, L. Kuo, D. Lane, G. Meeden, R.V. Ramamoorthi, B.K. Sinha, J. Srivastava, and W.J. Zimmer for their selfless service. Special thanks are due to Professor Robert J. Serfling, Editor of the IMS Lecture Notes Monograph Series for agreeing to publish this collection of essays. The project would never have been completed without his active encouragement at different stages of its preparation. We also thank Jose L. Gonzalez, the IMS Business Manager for his valuable advice at the final stages of the preparation of this volume.

Finally, we wish to thank Ms. Cindy Zimmerman for her patient and careful typing of all the manuscripts in a unified format.

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