Book Review

Game Theory, Experience, Rationality

Foundations of Social Sciences, Economics and Ethics : in honour of John C. Harsany.

Ed : **Leinfellner, Werner and Köhler, *Eckechart***

ISBN 0-7923-4943-1 £ 95.

Vienna Circle Institute Yearbook 5, Kuwer Academic Publishers, Dordrecht, The Netherlands 1998.

The Vienna Circle Institute is well-known for publishing from time to time a collection of scholarly articles on a chosen topic, based on a symposium or workshop on that topic. The current volume is the fifth in the series of yearbooks and is published in honour of John C Harsany, who shared with Reinhard Selten and John F Nash, the Nobel Prize in Economics in 1994. Harsany and Selten attended a meeting in Vienna in June 1996 on the topic of the book and their contributions are part of the collection of 27 excellent articles collected in the volume. They cover recent advances in theory of games, theory of game theoretical rationality, and their applications.

Game theory was virtuallly invented by the mathematician John von Neumann and the economist Oskar Morgenstern in the early 1940s. What is game theory ? Selten answers in his paper : *It is mathematical modelling and analysis of purposeful interaction in conflict and co-operation.* The book addresses questions, such as these : Do we have to give up our belief in the traditional form of deductive and linear rationality in the social sciences in favour of probabilistic and stochastic methods ? Which kind of rationality do we, and should we use when we attempt to practically solve societal problems and conflicts ? The consequences of a new multi-faceted rationality for the traditional foundations of game theory, decision theory, utility theory and finally for the social sciences in their entirety, are discussed in depth in the following seven sections and preface (key-note lecture by Selten) :

Rationality and the Foundations of the Social Sciences

Co-operation and Rationality

Rationality and Economics

Bayesian Theory and Rationality

Evolution and Evolutionary Game Theory

Ethics and Game Theory

Applications of Game Theory

The authors of the articles have tried to make their contributions accessible to a wide audience and the book will be of interest to researchers, teachers and advanced student of economics, sociology, physics, philosophy of science and others.

The book also includes, at the end, a 90-page section of reports on various subjects and book reviews on new publications on foundations of science, logic and mathematics, history of Vienna Circle and other topics. I found this part too interesting to read. The main part will appeal to serious readers. Even with a minimum background knowledge but with a lot of curiosity, I found the book very useful.

Saurabh Sanatani
Foreign Correspondent,
Indian Science Cruiser
Vienna, 5 April, 1998.

The Quantum Theory of Measurement

Paul Busch, Pekka J Lahti and Peter Mittelstaedt ;

Second Revised Edition, 1996.
ISBN 3-540-61355-2, Springer-Verlag.
Heidelberg, pp 181. DM 58.

Appearance of a second edition within five years of first publication of such a technical book, speaks of its success. The counter-intuitive nature of quantum mechanics is well-known. People are still worrying about a correct interpretation of the theory as well as about the foundations of the empirically most successful theory of the micro-world available today. The problem of measurement within quantum theory is an important example of the difficulties still remaining unsolved.

The authors of this slim volume have taken, in their own works, a first step towards writing a textbook on the quantum theory of measurement. The interested reader may pursue the subject at greater depth by following the ample bibliography provided.

Starting from a historical account of interpretations of quantum mechanics and its basic features in terms of its Hilbert Space representation and Probability Structure, the authors enter into a discussion of the notion of measurement. They dwell on various technical aspect, such as Pre-measurements, Reading of Pointer Values, Discrete Sharp Observables, Objectification, Measurement Dynamics, etc. They deal at length on the solution of the Objecfication problem and on various alternative approaches to the interpretation of quantum mechanics; eg, Copenhagen Interpretation, Ensemble and Hidden Variable Interpretation, Many Worlds and Model Interpretations. The topics of Decoherence and Superselection rules are briefly covered as also the problem of Quantum-Classical Dichotomy.

The authors conclude by observing that *The Quantum theory of measurement is*