Book Review of THE SCIENCE OF DECISION MAKING: AN INTRODUCTION TO PRAXEOLOGY by Arnold Kaufmann

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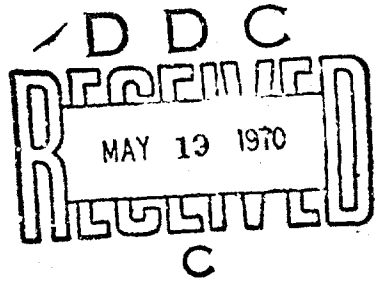

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Book Review of THE SCIENCE OF DECISION MAKING:
AN INTRODUCTION TO PRAXEOLOGY by Arnold Kaufmann

Translated from the French by Rex Audley
McGraw-Hill, New York, 1968

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This book presents several mathematical models useful for decision making in a form simple enough for them to be generally understood by one with a minimum knowledge of mathematics. Literature in this field has almost all developed in the last decade, and this survey is well suited to bring one up to date on current techniques.

Although the mathematical models discussed by Kaufmann are recent developments, use of quantitative data and processes to aid decision making can be found as early as the German Camerlists under Fredrick William I (1713-40). The idea that numerical analysis could be of value for decision making was essential to Jeremy Bentham's societal goal of maximum happiness, since the level of happiness was to be measured in quantitative terms. French mathematician Condorcet (1794) contended that moral and political sciences would yield truths as firm as those in the physical sciences, with the "calculus of probability" aiding prediction of human behavior. Comte (1838) was able to broaden the focus from numerical techniques to include the effects of various cultures and social systems on decison making and behavior. Reconciliation of quantitative processes with value has challenged social scientists ever since.

Kaufmann identifies the quantitative modes of decision making as an area of praxeology (a comprehensive theory of action), with

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which he contrasts intuition and irrationality. He is aware of the "metaphysical anxiety" of the fear of losing one's personal liberty occasioned by the intrusion of exact sciences into the art of decision making. He mentions the role played by ethics in decision making and concludes simply that:

> Logic and a concern for human relationships should be the two basic ingredients of human nature. The latter gives us the good intentions and the former allows us to put them into practice.

Thus, ethical considerations are not an integral factor of the decision algorithm. He admits that there are often possibilities for praxeologically sound action which are not the "numerically best" alternatives, but, he only salutes this issue, then moves on without offering any suggestions.

Kaufmann envisions the day when school children will construct praxeograms or mathematical models of action as routine assignments. The techniques they will use are foreshadowed by PERT and CPM. Also, he foresees a praxeological laboratory where individual and collective behaviors will be studied, optimal strategies of very complex problems will be determined and their risks measured. It will then be possible to concentrate on higher considerations, on what more nearly approximates ethics. In the meantime, however, simulations of management, business schemes and strategic war games applied to restricted and voluntarily limited cases will bring us less fragmentary information, less artificial knowledge of situations in time and space, and acceptable pictures of reality--without waiting for the intervention of computers with greater capabilities which will eventually be needed.

Further, he notes the development of bio-praxeology.

> The inclusion of biological elements in electronic circuits which must carry out certain functions, has been deemed both possible and useful. The idea has given rise to the science of bionics. Living creatures possess in their nervous system, in their chain of perception→analysis→decision→action, far more advanced mechanisms than those invented by man for corresponding purposes (the ultrasonic radar of bats). The bionicians envisage inserting parts of the chain or the whole creature into an artificial system which has a specific role to play. What we call bio-praxeology is the study in living

nature of strategies of the species to defend, to maintain, or even to transform themselves.

To Kaufmann, mathematical analysis is an operation separate from normative consideration. His comment that freedom "is the possibility of making rational choice in known and excepted circumstances" disregards the non-rational and implies a common perception of circumstances. Use of mathematical techniques for decision making on a wide scale may make more options apparent (thus greater freedom) to actors, but it does not overcome the failures of cookie-cutter thinking which include:

1. Exclusion of irrational, unexpected, randomness. (Blocks inputs into the decision analysis.)

2. Widespread use of the same decision making techniques. (By institutionalizing current methods, development and application of new ones may be inhibited.)

3. Proclivity of decision makers to slavishly follow recommendations supported by hard data. (Values and ethics must be part of the decision algorithm, not something to be considered after recommendations are made.)

Mathematical analysis may be the major decision making tool used by public policy makers, but its dangers must be realized. The Science of Decision Making puts one in mind of Robert Merton's story about chickens trained to line up for food when they hear a bell. The chickens concentrate so much on the process of getting into line that they are unaware one day when the line leads them to slaughter.