Theory of Decision under Uncertainty (Econometric Society Monographs)

Itzhak Gilboa
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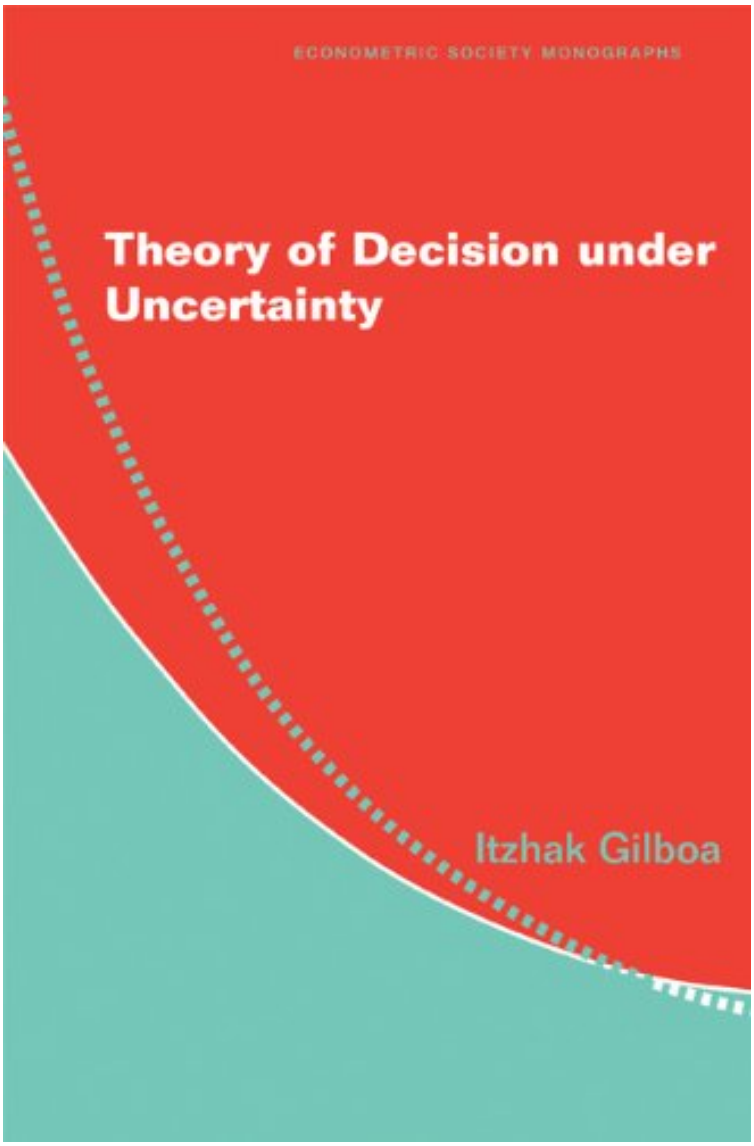

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Itzhak Gilboa : Theory of Decision under Uncertainty (Econometric Society Monographs) before purchasing it in order to gage whether or not it would be worth my time, and all praised Theory of Decision under Uncertainty (Econometric Society Monographs):

7 of 7 people found the following review helpful. interestingBy XYGiven the book's title, I was surprised at the extent to which the book deals with "decision making under risk" rather than "decision making under uncertainty." I agree that the standard terminology is very poor (like much of the terminology in the information sciences), but since this

book is directed at readers already exposed to some decision theory, I think that the standard taxonomy should be respected.The author's definitions of 'normative' and 'irrational' struck me as rather odd, being entirely subjective. I would have appreciated a bit more attention to this subject, although admittedly this risks getting side-tracked into messy philosophical considerations. The author also often fails to explain the extent to which material provided represents an advance over previous work. This may be obvious to experts; to me it was less so.13 of 14 people found the following review helpful. Good Technical Expositions, Interesting SpinsBy Herbert GintisItzhak Gilboa is a very talented, broad-thinking, yet technically super-competent economist who has spent his career mulling over the problems addressed in this book. The technical material in this book is not very technical, and can be understood independent from the reader's mathematical training, although it does require a willingness to think deeply about analytical issues. The models Gilboa presents are not new, but they are presented in an attractive manner, and it is rare to see so many different aspects of the rational choice process presented between two covers.I have long been a strong (my friends would say vociferous, my detractors stubborn) supporter of rational decision theory, while being clear about its limits and suggesting ways forward in broadening the model. My central claim is that the rational actor model is the most important analytical tool ever discovered for modeling human decision-making, and behavioral disciplines that reject this model, such as sociology and cognitive/social psychology, thereby relinquish the possibility of having core theories of decision-making and strategic interaction. I also believe that those who reject the model do not understand it and use arguments against it that are not only fallacious, but always (yes, always!) ignorant and even embarrassing. This book will thus give potential critics a solid grounding in the theory they so love to dump on.Gilboa himself comes across in this slim volume as a kinda' hang-loose guy who is willing to entertain all sorts of objections to the theory, and to defend rational choice rather more weakly than I would like. Most important, Gilboa rather takes at face value the critiques emanating from the Kahneman-Tversky camp of experimentalists, who have so brilliantly documented the various weaknesses of standard rational decision theory. My own take on these experimental results is far more skeptical (see Chapters 3 and 12 of my book, The Bounds of Reason).. Let me give one example.Gilboa discusses the famous "Linda the Bank Teller" example (p. 37ff). "Linda is 31 years old," we are told by the experimenter, "single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and she participated in antinuclear demonstrations. Rank order the following eight descriptions in terms of the probability (likelihood) that they describe Linda." Included in the list of eight are the following: (c) Linda is a bank teller, and (h) Linda is a bank teller who is active in a feminist movement.Surprisingly, many subjects rank (h) as more likely than (c), despite that fact that the probability of (h) must be much smaller than that of (c)---the latter probability is always strictly smaller, unless every bank teller is a feminist (which is absurd).Gilboa, like Kahneman and Tversky, agree that this is quite illogical behavior on the part of subjects. However, I argue in Bounds of Reason that the subjects are correct and the experimenters are incorrect. Here is the argument. In normal discourse, when we are talking to someone, we expect what they say to be relevant to the conversation. E.g., if we are discussing how to buy tickets for a concert, it would be bizarre for you say "my cousin George had half a banana with his cereal for breakfast last Wednesday." In light of this, what is the subject supposed to think when give this long explanation of Linda concerning her politics and personality if we are not supposed to bring this into consideration in deciding between (c) and (h)?The polite subject will doubtless try to find some way to interpret the question so that (c) vs. (h) becomes reasonable. One is very simple: the conditional probability of being Alice is higher given the individual is a feminist bank teller than if the individual is just a bank teller. In other words, if you had a pile of pictures of all bank tellers, you would be less likely to pick Alice randomly from the pile than if you were choosing from a pile of all feminist bank tellers (the latter would be almost all females, for one thing).Now of course other findings of subject "irrationality" have different explanations, but few of the experimental findings stand up to scrutiny as serious violations of rationality. Gilboa, nice guy that he is, goes overboard in acceding to the analyses of his critics.Gilboa also defines rationality in a manner quite at odds with the technical material. He says an individual's choice process is rational if the individual will defend it even after being presented with the evidence that it difference from that predicted/suggested by rational decision theory. This works well with some choices; e.g., if you point out to someone that they lost money by sharing with others in a game, most will respond that of course they knew that, but they prefer to share. However, if some stubborn fool never admits a mistake, he is always rational by Gilboa's criterion. Gilboa goes too far. One can defend social preferences by noting that they satisfy the axioms of decision theory, and thereby maintain a linguistic and philosophical consistency.Gilboa also presents a few alternatives to traditional rational decision theory, one of which, Prospect Theory, is very important, but does not violate any of the axioms of decision theory provided we define the choice space property (Bounds of Reason, Ch. 12). Most important, he devotes the final chapter to "case-based" decision making, which his own (with David Schmeidler) highly successful attempt at broadening rational decision theory.As for Gilboa's ideas for future research, they are encapsulated in a two-page throw away at the end of the book. In fact, rational decision theory has serious weaknesses that must be addressed by scholars of decision-making. The first is the abject inadequacy of the assumption that individual beliefs can be summarized by a "subjective prior" that is given in social isolation. In fact, subjective priors are more aptly designated as "personal beliefs," and personal beliefs are in fact the product of a web/network of social

connections and experiences that must be studies sui generis as a central social process. There is currently no such theory at all, although a number of people have suggested the use of network theory as a useful addendum to rational decision theory (e.g., Samuel Bowles and myself in a paper on "Persistent Parochialism" in the Journal of Economic Behavior and Organization several years ago).A second direction for fundamental change in decision theory is to drop the assumption that individual choice itself is taken in social isolation. When people face radical uncertainty, they often refrain from choosing altogether, and rather consult the social world to ascertain the choices others have made in similar situations. Perhaps ironically, Gilboa and Schmeidler's case-based choice theory provides a perfect analytical starting point for such a theory, though I cannot recall the authors recognizing or advocating this potential extension.So, the enterprising reader can assimilate this book and start in right away in solving some of the deep problems rational decision theory has set for us.0 of 0 people found the following review helpful. Five StarsBy Customervery nice book~

This book describes the classical axiomatic theories of decision under uncertainty, as well as critiques thereof and alternative theories. It focuses on the meaning of probability, discussing some definitions and surveying their scope of applicability. The behavioral definition of subjective probability serves as a way to present the classical theories, culminating in Savage's theorem. The limitations of this result as a definition of probability lead to two directions - first, similar behavioral definitions of more general theories, such as non-additive probabilities and multiple priors, and second, cognitive derivations based on case-based techniques.

"This is a fantastic book. It presents an intelligent, rigorous, and thought-provoking treatment of the theory of choice under uncertainty. The combination of philosophical and mathematical approaches is a treat. Graduate students and professional economists alike have much to learn from this book." - Daron Acemoglu, Massachusetts Institute of Technology"This is a beautifully written book that I recommend to anyone who is interested in understanding the 'what,' 'how,' and 'why' of decision theory. The balance between conceptual issues, formalism, and philosophical underpinnings is unique. It will become a standard reference and text." - Larry Epstein, Boston University"With his seminal works, Itzhak Gilboa is one of the leading figures in the 'neoclassical' decision theory that in the past 20 years has considerably expanded the scope of the classical theory pioneered by de Finetti, Ramsey, Savage, and von Neumann. This book provides a superb and much-needed introduction to this exciting research area." - Massimo Marinacci, Collegio Carlo Alberto, Italy"At the heart of most economic analysis is a description of how individuals make decisions. There have been fundamental advances in our understanding of decision making in recent years, and this book provides an extremely accessible explanation of the current state of the field. Perhaps more importantly, it lays out the conceptual underpinnings of decision theory: why the various assumptions in modeling decision making are made and how they affect economic predictions." - Andrew Postlewaite, University of Pennsylvania"Expected utility theory underlies most of statistics, economics, and finance. But are utility functions and probabilities all that we need to formulate wise decisions? And where do utility functions and probabilities come from? Written by the distinguished creator of new decision theories Itzhak Gilboa, Theory of Decision under Uncertainty is a beautifully written critical account of decision theory that answers these and other important questions. Gilboa's work opens doors for both theorists and applied workers." - Thomas Sargent, New York UniversityAbout the AuthorItzhak Gilboa is Professor in the Berglas School of Economics, Tel-Aviv University, and Professor in the newly established Department of Economics and Decision Science, HEC, Paris. Earlier, he became a chaired professor at Northwestern University in 1992, visited at the Department of Economics, University of Pennsylvania (1995-7), and was a Professor at Boston University (1997-9). Professor Gilboa also served as a Fellow at the Cowles Foundation at Yale University from 2001 to 2007. The recipient of a Sloan Fellowship, among other awards, he has published articles in the leading economic theory journals, primarily on decision under uncertainty. Professor Gilboa coauthored A Theory of Case-Based Decisions with David Schmeidler (Cambridge University Press, 2001). He received his Ph.D. from Tel-Aviv University in 1987.