



In the Twilight of Probabilities

A Review of

Simply Rational: Decision Making in the Real World

by Gerd Gigerenzer

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Reviewed by

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It isn't often I really enjoy a book of collected papers from a single author. I think it's likely because relatively few authors are capable of staging a set of offerings that have been produced over time and that are not simply restatements or variations on one or two career themes. However, the present volume, a compendium of previously published but revised for currency papers, taps into two fundamental transitions that psychology has made in the past several decades and that make this book exciting. One is a relatively recent emphasis toward a positive view of the individual and the study of how human flourishing can be achieved. The second is based on a longer-present but quieter theme that has characterized human psychology as evolutionary and adaptive. For example, the *probabilistic functionalism* of psychologist Egon Brunswik (e.g., Brunswik, 1943, 1952) saw humans as fundamentally adaptive, learning to operate in a dynamic environment within a sphere of complex cues having imprecise and probabilistic relationships to one another. Today, evolutionary psychology has expanded enormously on ideas such as these, and it has given us an opportunity to conceptualize and study the human in terms of its natural environment, *in situ*, if you will (e.g., Buss, 1995; Lickliter & Honeycutt, 2003).

Professor Gigerenzer's work is in this spirit, and it comes directly to grips with some of the challenges that have been posed to the more linear and controlled work of the psychological laboratory where study designs have traded off ecological validity for a precise knowledge of the task given to research subjects and the correct answer they should give to the problems they are asked to solve. He does this in the context of real-world risk-based decision making, that is, problems in life for which no convenient or simple answer is available and, indeed, in some cases no firm answer is possible because the problem is fraught with inherent complexities and uncertainties: problems for which one stands to either gain or lose something of substantial or important value (e.g., life, money, prestige). Some have called problems such as these "messy and wicked" (Hancock, 2010).

Each of the chapters Gigerenzer has chosen for his book deals in one way or another with problems of these sorts or with assisting those who work with or advise people on such problems. Included here are physicians and attorneys for whom complexity and uncertainty

are ever present in the work that they do. But included also are, for example, patients who must wrestle with understanding and making decisions about medical risks based on uncertainty and incomplete knowledge. These situations tax the meaning of rationality and push it from a localized definition based on the economics of utility theory for which precise and mathematically correct solutions can be known and into a more fluid definition that, as Gigerenzer argues, takes advantage of our intuitive abilities vis-à-vis heuristics that we have evolved to apply to just such problems to make them tractable in an adaptive sense.

It is in the area of cognitive heuristics (Part III, Chapters 7 and 8) that Gigerenzer makes, at least to this writer, one of his more significant contributions to how we can think more deeply about cognition from an evolutionary perspective. Cognitive heuristics have, in some senses, been given a bad rap. As part of refuting utility theory by demonstrating that the intuitive tools people apply to some types of problems lead them to suboptimal behavior in an economic sense, we've come to see heuristics as a form of biased judgment with negative connotations. Gigerenzer's take on heuristics is much more in line with a view that recognizes the adaptive utility of relatively simple rules that are based on the kinds of information (e.g., numbers, frequencies) that are more readily available in the human's natural cognitive environment where the gold standard for performance is not strict adherence to the axioms of utility theory but rather to the demands of the complex aleatory arrangements that populate modern life, such as medical decisions, insurance purchases, and retirement planning.

This is a book that can be in service to a number of readers and purposes. For those interested in human cognition, the relevance is direct. Many graduate students in psychology will be aware of the work contained in this volume, and those who are not would be the better for becoming familiar with the perspectives offered here. A graduate course in the psychology of judgment and decision making could make very good use of either the whole book or selected chapters depending upon emphasis and interest. For those interested in applied risk communication, the book presents practical methods for restructuring risk-related information that improves judgment with respect to complex risk problems.

Finally, the title of this review comes from an observation made by John Locke, a 17th century philosopher, that most everything we do, including the decisions we make, is done not in the context of knowledge and understanding but rather in the "twilight of probabilities" where reasoning is accomplished in the half-light of uncertainties. It would not be a stretch to say that the twilight has grown ever dimmer with the passing of three centuries and an ever-increasing burden of complexity imposed on our cognition by modern life. All the more reason for a book like *Simply Rational: Decision Making in the Real World* to help push back that darkness just a bit and to give us a deeper understanding of our inherent human abilities to manage complexity.

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