
BOOK REVIEWS

A Review of *Linked: The New Science of Networks* and *Nexus: Small Worlds and the Groundbreaking Science of Networks*

Robert A. Olsen

Linked: The New Science of Networks, Albert-László Barabási, 2002, Cambridge, MA: Perseus Publishing, 280 pp.

Nexus: Small Worlds and the Groundbreaking Science of Networks, Mark Buchanan, 2002, New York: W. W. Norton and Company, 235 pp.

Stock return distributions have “fat tails”. That is, historically, very low and very high returns have occurred more often than would “normally” be expected. Also, in most societies, a minority of the population has possessed a disproportionately large proportion of the wealth. Finally, most spectacular economic booms and busts seem to arise out of nowhere. That is, major economic events seem to have very small, and usually unrecognized, causes.

Mathematically, these phenomena represent the working of “power laws” and their behavior appears best explained by the new science of Networks. To this point in time, economic theory has paid little attention to Network theory. This is because the standard formal model of economics views the economy as a set of autonomous and anonymous agents interacting thru the price system in such a fashion that the influence of positive feedback can be ignored. Now however, the new science of Networks is providing the opportunity for a more complete and unified understanding of these hitherto anomalous, but related, economic phenomena.

The authors begin by noting that Network theory is part of Complexity theory and that the principles of network behavior are universal and largely independent

of the particular discipline within which the network is encountered. The most important lesson to be learned from Network theory is that network behavior cannot be understood thru a detailed understanding of a network’s constituent parts. Network behavior is “emergent” and can only be understood by studying the dynamics of the system at hand.

The authors suggest that all network behavior is governed by two overarching principles: growth and preferential attachment. First, each network starts from a small nucleus and expands with the addition of new nodes. Second, these new nodes tend to first link-up with the existing nodes that have the most prevailing links. These writers then proceed to explain how these apparently simple principles lead to some universal, but often puzzling system behaviors. In particular they note that networks tend to exhibit synchronicity (herding type behavior), sudden rather than gradual collapse, and a propensity for the “rich to get richer”.

In addition, the authors go into detail explaining how weak ties or links between nodes are usually more important than strong ties in forming stable and efficient systems or networks. They also explain how these weak ties are primarily responsible for the “small world” phenomenon wherein people and organizations find themselves having more in common with apparent strangers than they ever would have thought possible (the six degrees of separation idea). While neither of these books is primarily written from an economic or financial perspective, the writers make significant reference to these fields and the relevance to, and the implications of, network theory for these fields is impossible to miss. Nevertheless, they do provide many interesting examples of how network theory leads to counterintuitive economic conclusions. For example they explain how network theory requires that “trickle down” economic policies always fail and how increased stock market volatility can only be a boon for wealthy investors.

In summary, both of these books cover the same basic territory, while they present an introductory treatment of the new science of networks. Barabási is a

Robert A. Olsen is Professor Emeritus from California State University, Chico and a Research Fellow with Decision Research in Eugene, Oregon. He holds graduate degrees in Finance from the University of Oregon and the University of Massachusetts. Professor Olsen has business experience as a Financial Analyst and consulting experience with small business start-ups. Professor Olsen’s research interests are focused on Risk Perception and Behavioral Finance.

Requests for reprints should be sent to: Robert Olsen, Decision Research, 1201 Oak Street, Eugene, OR 97401. Email: olsenbfin@msn.com

computer scientist and his book may have greater appeal to those with a similar interest. Buchanan is a physicist and an editor for *Nature*. His book contains a wider range of examples taken from the social and physical sciences. Neither book is very mathematical

(although advanced treatments of the topic are so) and the exposition is clear and concise in both works. Economists and financial professionals should find these books, and the topic of networks, pregnant with modeling possibilities.

A Review of *Heuristics and Biases: The Psychology of Intuitive Judgment*

Robert A. Olsen

Heuristics and Biases: The Psychology of Intuitive Judgment, Ed. Thomas Gilovich, Dale Griffin, and Daniel Kahneman, 2002, New York: Cambridge University Press, 857 pp.

In the 1970's Daniel Kahneman, Paul Slovic and Amos Tversky introduced the "Heuristics and Biases" approach to the study of decision making. This approach served as a counterpoint to the "Rational Decision approach," then in favor, in that it formally recognized the cognitive limitations of human decision makers and did not assume that humans were logic machines, always employing formal algorithmic mental processes in the pursuit of optimization. In particular, this approach recognized that human decision makers were more often "satisficers," employing rules of thumb, and being affectively (emotionally) influenced. This more informal decision approach was hypothesized to result in generally acceptable and more timely outcomes, but at the cost of occasional and possibly, systematic, errors. This new approach has since resulted in an enormous flood of research in economics, psychology, management, law, and other related disciplines. In general, this recent research has led to supe-

rior descriptive and normative models of human decision making.

This readings book contains forty two of the most recent and significant pieces of research in the Heuristics and Biases tradition. More specifically, the book is organized into three major sections; Theoretical and Empirical Extensions, New Theoretical Directions, and Real World Applications. The topics addressed in these sections include Representativeness, Availability, Anchoring, Forecasting, Optimism, Support Theory, Expert Judgment, Everyday Judgment, and Norms and Counterfactuals.

The authors have intended this book as an update and successor to the earlier, "Judgment Under Uncertainty: Heuristics and Biases" published in 1982. The book begins with a historical overview of the Heuristics and Biases program and is written such that those who are new to the area should have no difficulty following the controversy. Many of the included articles have been published elsewhere and have been edited as necessary. The book also contains an encyclopedic set of references to the decision making literature. This feature makes it extremely valuable as a reference source. In summary, this book is a "must read" for those interested in Behavioral Decision Making.

