



Decision Analysis

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

From the Editors...Remembering Ward Edwards

Robert T. Clemen, Don N. Kleinmuntz,

To cite this article:

Robert T. Clemen, Don N. Kleinmuntz, (2005) From the Editors...Remembering Ward Edwards. Decision Analysis 2(1):1-3. <https://doi.org/10.1287/deca.1050.0037>

Full terms and conditions of use: <https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions>

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

© 2005 INFORMS

Please scroll down for article—it is on subsequent pages



With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes. For more information on INFORMS, its publications, membership, or meetings visit <http://www.informs.org>

From the Editors . . . Remembering Ward Edwards

Robert T. Clemen

Fuqua School of Business, Duke University, Durham, North Carolina 27708, clemen@mail.duke.edu

Don N. Kleinmuntz

Department of Business Administration, University of Illinois at Urbana-Champaign, 1206 South Sixth Street, Champaign, Illinois 61820-6980, dnk@uiuc.edu

Ward Edwards' contributions to behavioral decision theory and decision analysis are remembered, as are his contributions to the Decision Analysis Society of INFORMS and this journal. The lead article of the issue, by Gregory, Fischhoff, and McDaniels, notes that applications of decision analysis to public-process decision making would benefit from improved linkages between psychological and analytical approaches. Other contributions include Bayesian models for combining expert opinions, an empirical study of risk taking in sequential decision making, and applications to environmental management and the sport of curling.

Key words: decision analysis; editorial

Our previous editorials have typically focused on the articles in the current issue. However, we wish to take this opportunity to note the passing of a champion of the field of decision analysis. Ward Edwards died on February 1, 2005, after a long struggle with Parkinson's disease.

Our feeling of loss is both personal and professional. Ward's contributions to decision analysis and to related fields were both unique and wide-ranging, and he personally shaped the way that many of us think about critical issues in our field. He published the seminal paper that brought decision making and decision theory to the attention of psychologists (Edwards 1954), leading directly to the creation of behavioral decision theory (Edwards 1961). Collaborating with Lindman and Savage, he introduced Bayesian principles to researchers in psychology before many other fields had recognized their value (Edwards et al. 1963). Ward embraced the then-emerging field of Bayesian statistics, which he continued to proselytize throughout his career.

One of the key insights that came from Edwards et al. (1963) was an understanding that Bayes' theorem is an appropriate normative rule for revising opinions in light of new evidence, a fundamental cognitive task. However, in examining how humans actually revised opinions, Ward and colleagues discovered

systematic deviations from the normative rule; revisions were often more conservative than the calculations from Bayes' theorem (Edwards 1968). Through this work, Ward defined a basic paradigm for studying the psychology of judgment and decision making: Use normative decision theory to define rational behavior, compare actual behavior to the norms, and then infer causes for deviations. This approach was adopted by Kahneman and Tversky and ultimately many others, leading to a veritable explosion of work in psychology and related fields.

Ward influenced behavioral decision theory in many ways, and his contributions did not stop there. Ward saw that systematic shortcomings in human inference and choice implied a vital need for tools and technologies to augment human capabilities. He was a pioneer in the early development of what we would now call decision support systems for probabilistic inference, doing both basic development work and applied demonstrations of information technology to improve inferential judgment (Edwards 1962). This work was the precursor of modern systems for hierarchical Bayesian inference.

Ward was also an outspoken opponent of the view that cognitive errors were inevitable and irremediable. His position, aptly stated in his book with Detlof von Winterfeldt (von Winterfeldt and Edwards 1986), went beyond the notion that decision makers need

to be aware of potential cognitive decision traps. His emphasis on tools and technologies explains Ward's lasting dedication to decision analysis. He always pushed his colleagues to think about how decisions could be improved, and throughout his career he worked toward the development of computer-based decision aids (e.g., Edwards and Fasolo 2001). The Internet in particular offers numerous opportunities, and Ward remained hopeful that someday it would be possible for an individual to routinely download and use decision-aiding software tailor-made for particular kinds of decisions.

While it is hard to sum up five decades of contributions in a few words, Ward was relentlessly effective at delivering some fundamental messages: First, that decision making is a topic inherently worthy of scientific inquiry. Second, that decision making is so broad a topic that it requires inquiry from an equally broad range of scientific disciplines. Third, that decision making about important problems can be improved by application of the principles of rationality, and that this is an attainable goal in the real world. Finally, that attaining this goal requires both appropriate technologies and an understanding of how people think about these problems.

Ward received many honors and professional recognitions, including the Decision Analysis Society's Frank P. Ramsey award in 1988. The award recognizes distinguished contributions to the field of decision analysis. While we have touched on a few of Ward's specific contributions, they are far too numerous to list here (but see Shanteau et al. 1999). His leadership took many forms. His annual Bayesian conference, originally at the University of Michigan but later at the University of Southern California, gave many scholars, young and old, the opportunity to present their work and learn from others in a supportive and stimulating interdisciplinary setting. He served as president of the Decision Analysis Society from 1994-1996, at a point late enough in his career that many others would not have bothered. During his term, he worked hard to help the society grow and prosper.

Closer to home, Ward was a genuine advocate for this journal, supporting our endeavors as editors (and also telling us when he thought we could do better!). We are delighted that Ward was able to witness the

publication of the first year of *Decision Analysis*, and we believe that he would have been pleased with our continuing efforts to publish the best research and applications in decision analysis.

Turning to the issue contents of this journal, we begin with an article by Gregory, Fischhoff, and McDaniels that Ward would have appreciated. Even though decision analysis is based on a theoretical framework that assumes a single individual decision maker, decision analysis tools and processes are often used in settings involving multiple stakeholder groups. In "Acceptable Input: Using Decision Analysis to Guide Public Policy Deliberations," Gregory and colleagues argue that the divergence between behavioral decision theory and decision analysis has negatively impacted approaches for improving public-process decision making. In a broad-ranging statement, the authors' assert:

Realizing decision analysis's potential for designing and evaluating deliberative processes requires strengthening the link between decision analysis and behavioral decision research. In the early years of both fields, understanding cognitive and psychological processes was seen as essential to designing procedures that exploit their strengths, circumvent their weaknesses, and assess the adequacy of the result. Conversely, serving those ends set the agenda for behavioral research (Edwards 1954; Slovic et al. 1977). Over time, though, analytical procedures have lost some of their cognitive connection, while behavioral research has lost much of its prescriptive element. One result is that the descriptive findings of behavioral decision research have been invoked to support sweeping claims about limits to the public's decision-making competence (Breyer 1993, Sunstein 2002). Even when the research is cited accurately, these commentators take the public as it is, not as it might be after exposure to decision-aiding techniques and with properly designed participatory processes.

We heartily endorse the view that the links between decision analysis and behavioral decision theory should be renewed and strengthened. And while we agree with Gregory and colleagues that decision analysis tools and procedures have the potential to ameliorate psychological effects, we hasten to add that careful research is needed to verify many of these claims and test their generality. This journal is keenly

interested in publishing high-quality research that bridges behavioral decision theory and decision analysis; we have recently issued a call for papers for a special issue on just this topic.

The remaining articles in this issue represent a wide variety of decision analysis research and application. Merrick, van Dorp, and Singh develop a Bayesian statistical model for combining expert judgments in a risk-analysis context. Weber and Zuchel's empirical paper seeks to explain and unify seemingly conflicting experimental results on risk taking in sequential decision making. Merrick, Parnell, Barnett, and Garcia present an application of multiattribute methods for assessing and managing the environmental quality of a watershed. Finally, Willoughby and Kostuk use a decision analysis framework to study a strategic decision in the sport of curling.

We hope that you find all of the articles in this issue interesting and thought-provoking. We believe that Ward would have.

References

- Breyer, S. 1993. *Closing the Vicious Circle: Toward Effective Risk Regulation*. Harvard University Press, Cambridge, MA.
- Edwards, W. 1954. The theory of decision making. *Psych. Bull.* **51** 380–417.
- Edwards, W. 1961. Behavioral decision theory. *Annual Rev. Psych.* **12** 473–498.
- Edwards, W. 1962. Dynamic decision theory and probabilistic information processing. *Human Factors* **4** 59–73.
- Edwards, W. 1968. Conservatism in human information processing. B. Kleinmuntz, ed. *Formal Representation of Human Judgment*. Wiley, New York, 17–52.
- Edwards, W., B. Fasolo. 2001. Decision technology. *Annual Rev. Psych.* **52** 581–606.
- Edwards, W., H. Lindman, L. J. Savage. 1963. Bayesian statistical inference for psychological research. *Psych. Rev.* **70** 193–242.
- Shanteau, J., B. A. Mellers, D. A. Schum, eds. 1999. *Decision Science and Technology: Reflections on the Contributions of Ward Edwards*. Kluwer Academic Publishers, Boston, MA.
- Slovic, P., B. Fischhoff, S. Lichtenstein. 1977. Behavioral decision theory. *Annual Rev. Psych.* **28** 1–39.
- Sunstein, C. 2002. Probability neglect: Emotions, worst cases, and law. *Yale Law Rev.* **112** 61–76.
- von Winterfeldt, D., W. Edwards. 1986. *Decision Analysis and Behavioral Research*. Cambridge University Press, New York.