

## From the Editors...

L. Robin Keller

University of California, Irvine, Irvine, California 92697, lrkeller@uci.edu

Ali Abbas

University of Illinois at Urbana–Champaign, Urbana, Illinois 61801, aliabbas@uiuc.edu

Manel Baucells

Universitat Pompeu Fabra, 08005 Barcelona, Spain, manel.baucells@upf.edu

Vicki M. Bier

University of Wisconsin–Madison, Madison, Wisconsin 53706, bier@engr.wisc.edu

David Budescu

Fordham University, Bronx, New York 10458, budescu@fordham.edu

John C. Butler

The University of Texas at Austin, Austin, Texas 78712, john.butler2@mcombs.utexas.edu

Philippe Delquié

George Washington University, Washington, DC 20052 delquie@gwu.edu

Jason R. W. Merrick

Virginia Commonwealth University, Richmond, Virginia 23284, jrmerrick@vcu.edu

Ahti Salo

Aalto University, 00076 Aalto, Finland, ahti.salo@tkk.fi

George Wu

University of Chicago, Chicago, Illinois 60637, wu@chicagobooth.edu

This issue's "From the Editors" column is coauthored with all the associate editors, to emphasize their major role in the leadership of the journal. Our first article is by Samuel E. Bodily and Phillip E. Pfeifer, on "Darden's Luckiest Student: Lessons from a High-Stakes Risk Experiment." In the second article, J. Eric Bickel discusses "Scoring Rules and Decision Analysis Education." Our third article, on "Eliciting Patients' Revealed Preferences: An Inverse Markov Decision Process Approach," is by Zeynep Erkin, Matthew D. Bailey, Lisa M. Maillart, Andrew J. Schaefer, and Mark S. Roberts. Next is Anthony M. Barrett's article on "Cost Effectiveness of On-Site Chlorine Generation for Chlorine Truck Attack Prevention." Our final article is "Paradoxes in Learning and the Marginal Value of Information," by Peter I. Frazier and Warren B. Powell.

*Key words:* applications: terrorism; applications: public policy; Bayesian analysis; behavioral decision making; cost-effectiveness; decision analysis; education; experimental; design of experiments; health care; inverse optimization; Markov decision processes; preference assessment; probability assessment; quality-adjusted life years; risk analysis; risk aversion/tolerance; scoring rules; sequential decision analysis; uncertainty; utility-preference: estimation; value of information; editorial

*A teacher who is attempting to teach without inspiring the pupil with a desire to learn is hammering on cold iron.*

Horace Mann

Since our first two articles in this issue are on novel ways to inspire students and teach decision analysis concepts, our opening quote is on teaching. Although sometimes we do confront cold iron, usually teaching is a joy, especially when we can use novel or interac-

tive methods like those in our first two papers. The third paper presents a technique to determine medical patients' preferences. The fourth paper applies decision analysis to terrorism, and the fifth paper addresses the value of information when many alternative choices are available.

Following our tradition, this column is coauthored with our associate editors to recognize another year

of their editorial leadership. As we leave 2010, we are also printing our annual thank you to our referees. Our authors, editors, and referees have successfully teamed to launch our journal successfully.<sup>1</sup>

As we enter 2011, we thank Manel Baucells as he completes his term as an associate editor and returns to the editorial board as a regular member. Please welcome our new associate editors, J. Eric Bickel from the University of Texas at Austin and Kenneth C. (Casey) Lichtendahl Jr. from the University of Virginia. Joining the editorial board as regular members are Tianjun Feng of Fudan University, Jeffery L. Guyse of Cal Poly Pomona, Warren Joe Hahn of Pepperdine University, Karen Jenni of Insight Decisions, Victor Jose of Georgetown University, H. Dharma Kwon of the University of Illinois at Urbana–Champaign, Gaël Le Mens of Universitat Pompeu Fabra, Alec Morton of the London School of Economics, Eva Regnier of the Naval Postgraduate School, David Rios Insua of the Royal Academy of Sciences, Matthias Seifert of IE Business School, Jay Simon of the Naval Postgraduate School, Uri Simonsohn of Wharton, Jack Soll of Duke University, Canan Ulu of the University of Texas, Johan René van Dorp of the George Washington University, and Jun Zhuang of the University at Buffalo. Ending their terms on the editorial board are James S. Dyer, Ronald A. Howard, Don Keefer, Craig W. Kirkwood, Miley (Lee) Merkhofer, and Lawrence Phillips.

In 2011, we begin the second year of the final three-year term of this editorship, because under INFORMS rules there is a mandatory search for a new editor at the end of the second term. A search committee for the new editor will be appointed by INFORMS to carry out the search.

In our first article, Samuel E. Bodily and Phillip E. Pfeifer describe a captivating class exercise in "Darden's Luckiest Student: Lessons from a High-Stakes Risk Experiment." In two different academic terms, students faced the possibility of being chosen as the only one to receive the opportunity to participate in

a lottery consisting of equally likely outcomes of zero and the cash equivalent to one semester of the Darden School tuition. Before knowing who was chosen, students were asked to declare the price at which they would choose a fixed dollar offer over the lottery. In addition to potentially providing motivation for students to study decision analysis, Bodily and Pfeifer (2010) used these class exercises to examine factors affecting the choice behavior of people facing lotteries involving high stakes. In addition to the following article on teaching by Bickel, a prior related paper on education in *Decision Analysis* is Bickel (2009) on using baseball examples in teaching.

Next, in "Scoring Rules and Decision Analysis Education," J. Eric Bickel discusses different probability scoring rules. Then, Bickel (2010) shows how they can be used in a novel examination procedure where students assign a probability to each possible answer in a multiple choice exam. Prior papers in *Decision Analysis* by Bickel include Bickel (2007) on scoring rules, Bickel (2009) on baseball decision analysis, Bickel and Smith (2006) on optimal sequential exploration, Bickel (2008) on the value of information, and Bickel (2006) on corporate risk aversion. Bickel also provides leadership to the journal by serving on the editorial board (and as a new associate editor starting in 2011). Prior related papers in *Decision Analysis* on scoring rules include Kilgour and Gerchak (2004), Johnstone (2007), Abbas (2009), and Schervish et al. (2009).

Now it is time for our *Trivia question*: Match each decision analyst to the university from which he or she received a Ph.D. or an equivalent doctorate. (Hint, each issue's "About the Authors" column is available freely online; see the September 2010 issue's authors at <http://da.journal.informs.org/cgi/content/abstract/7/3/322>.)

Decision analysts: Ali Abbas, Manel Baucells, J. Eric Bickel, Vicki Bier, Sam Bodily, Han Bleichrodt, David Budescu, John Butler, Jim Corner, Enrico Diecidue, Robin Dillon-Merrill, Jim Dyer, Ward Edwards, Louis Eeckhoudt, Philippe Delquié, Peter C. Fishburn, Robin Gregory, Raimo P. Hämmäläinen, Charles Harvey, Gordon Hazen, Ron Howard, Karen Jenni, Jianmin "Jamie" Jia, Victor Jose, Daniel Kahneman, Don Keefer, Ralph Keeney, L. Robin Keller, Craig Kirkwood, Howard Kunreuther, Casey Lichtendahl, Duncan Luce, B. Cade Massey, Kevin McCardle,

<sup>1</sup> As one indication of our success, we are pleased to report that *Decision Analysis* is covered by the Social Science Citation Index, beginning with Volume 6, Issue 1 (March 2009). Our INFORMS Publications staff members are attempting to get coverage back to Volume 1.

Jason Merrick, Kara Morgan, Ayse Öncüler, John Payne, Howard Raiffa, Daniel Read, Ahti Salo, Rakesh Sarin, Jay Simon, Paul Slovic, Jim Smith, Jeffrey S. Stonebraker, Amos Tversky, Canan Ulu, Peter Wakker, Martin Weber, Detlof von Winterfeldt, George Wu, and Jun Zhuang.

Universities: Arizona State University, Carnegie Mellon University, Case Institute of Technology, University of Chicago, Duke University, Erasmus University, George Washington University, Harvard, Helsinki University of Technology, MIT, Michigan, Michigan State, Purdue University, Stanford University, Tilburg University, UC Berkeley, UCLA, UC Irvine, University of British Columbia, University of North Carolina at Chapel Hill, The University of Texas at Austin, University of Toronto, University of Wisconsin–Madison, and Wharton at the University of Pennsylvania.

Our third article, “Eliciting Patients’ Revealed Preferences: An Inverse Markov Decision Process Approach,” is by Zeynep Erkin, Matthew D. Bailey, Lisa M. Maillart, Andrew J. Schaefer, and Mark S. Roberts. Erkin et al. (2010) propose a new method to determine patients’ preferences over health states based on observed decisions. The technique is demonstrated for a decision on the timing of a living-donor liver transplant. Prior related papers in *Decision Analysis* include Harvey and Østerdal (2010) on cardinal scales for health evaluation, Hazen (2004, 2007) on modifications of quality adjusted life years (QALY) models, Cantor (2004) on clinical decision analysis, Pauker and Wong (2005) on influence diagrams’ use in medicine, and Keeney and Vernik (2007) on the biological clock decision.

We now turn to antiterrorism decisions. Anthony M. Barrett examines chlorine gas trucking and sees how cost effective it would be to generate chlorine on-site to get the trucks off the road and prevent them from being targeted in attacks intended to cause releases in chlorine. This reminds us of when Editor Keller’s UC Irvine MBA alumnus contacted the faculty via e-mail from Iraq, saying he’d like to get access to their decision analysis and other operations research course materials so he could use them in his operational analyses. They were able to give him Internet access to their online course syllabus and materials system. One of the successful analyses he did

was to identify a way to get more trucks off the road in Iraq, protecting them from improvised explosive devices (IEDs) by having more air deliveries of supplies. In “Cost Effectiveness of On-Site Chlorine Generation for Chlorine Truck Attack Prevention,” Barrett (2010) considers the on-site generation of chlorine or hypochlorite at all U.S. facilities currently receiving chlorine by truck, and calculates system costs and cost effectiveness in terms of expected cost per death avoided by getting the trucks off of the roads. Related papers on terrorism in *Decision Analysis* include Bakir (2008) and Merrick and McLay (2010) on countermeasures to secure cargo at southwest U.S. border entries. Other papers in *Decision Analysis* on terrorism are Feng and Keller (2006) and von Winterfeldt and O’Sullivan (2006).

In our final paper, Peter I. Frazier and Warren B. Powell discuss “Paradoxes in Learning and the Marginal Value of Information.” Frazier and Powell (2010) examine the Bayesian ranking and selection problem, where an information collection budget is allocated as efficiently as possible to choose the best among several alternatives. Prior articles in *Decision Analysis* discussing value of information include Keisler (2004), Matheson and Matheson (2005), Bickel (2008), Delquié (2008), Eppel and von Winterfeldt (2008), and Prange et al. (2008). In addition, Felli and Hazen (2004) describe a novel way to conduct sensitivity analysis and represent value of information using their javelin diagrams, and Merrick (2009) discusses the Bayesian ranking and selection problem in the context of Bayesian simulation.

In closing, see the footnote for our *Trivia answers*.<sup>2</sup>

<sup>2</sup> *Trivia answer*: Arizona State: Corner, Stonebraker; Carnegie Mellon: Jenni, Morgan; Chicago: Massey; Case Institute of Technology: Fishburn; Duke: Jose, Lichtendahl, Ulu; Erasmus: Bleichrodt; George Washington: Merrick; Harvard: Edwards, Wu; Helsinki University of Technology: Hämäläinen, Salo; Michigan: Keefer, Raiffa, Slovic, Tversky, von Winterfeldt; Michigan State: Eeckhoudt; MIT: Bier, Bodily, Delquié, Howard, Keeney, Kirkwood, Kunreuther, Luce; Purdue: Hazen; Stanford: Abbas, Bickel, Dillon-Merrill, Harvey, Smith; Tilburg: Diecidue, Wakker; Toronto: Read; University of Aachen: Weber; UBC: Gregory; UC Berkeley: Kahneman; UCLA: Baucells, Keller, McCardle, Sarin; UC Irvine: Payne, Simon; UT Austin: Butler, Dyer, Jia; University of North Carolina at Chapel Hill: Budescu; University of Wisconsin–Madison: Zhuang; Wharton: Öncüler.

## References

- Abbas, A. E. 2009. A Kullback-Leibler view of linear and log-linear pools. *Decision Anal.* 6(1) 25–37.
- Bakir, N. O. 2008. A decision tree model for evaluating countermeasures to secure cargo at United States southwestern ports of entry. *Decision Anal.* 5(4) 230–248.
- Barrett, A. M. 2010. Cost effectiveness of on-site chlorine generation for chlorine truck attack prevention. *Decision Anal.* 7(4) 366–377.
- Bickel, J. E. 2006. Some determinants of corporate risk aversion. *Decision Anal.* 3(4) 233–251.
- Bickel, J. E. 2007. Some comparisons among quadratic, spherical, and logarithmic scoring rules. *Decision Anal.* 4(2) 49–65.
- Bickel, J. E. 2008. The relationship between perfect and imperfect information in a two-action risk-sensitive problem. *Decision Anal.* 5(3) 116–128.
- Bickel, J. E. 2009. On the decision to take a pitch. *Decision Anal.* 6(3) 186–193.
- Bickel, J. E. 2010. Scoring rules and decision analysis education. *Decision Anal.* 7(4) 346–357.
- Bickel, J. E., J. E. Smith. 2006. Optimal sequential exploration: A binary learning model. *Decision Anal.* 3(1) 16–32.
- Bodily, S. E., P. E. Pfeifer. 2010. Darden's luckiest student: Lessons from a high-stakes risk experiment. *Decision Anal.* 7(4) 331–345.
- Cantor, S. B. 2004. Clinical applications in the decision analysis literature (Comment on Keefer et al. 2004). *Decision Anal.* 1(1) 23–25.
- Delquié, P. 2008. The value of information and intensity of preference. *Decision Anal.* 5(3) 129–139.
- Eppel, T., D. von Winterfeldt. 2008. Value-of-information analysis for nuclear waste storage tanks. *Decision Anal.* 5(3) 157–167.
- Erkin, Z., M. D. Bailey, L. M. Maillart, A. J. Schaefer, M. S. Roberts. 2010. Eliciting patients' revealed preferences: An inverse Markov decision process approach. *Decision Anal.* 7(4) 358–365.
- Felli, J. C., G. B. Hazen. 2004. Javelin diagrams: A graphical tool for probabilistic sensitivity analysis. *Decision Anal.* 1(2) 93–107.
- Feng, T., L. R. Keller. 2006. A multiple-objective decision analysis for terrorism protection: Potassium iodide distribution in nuclear incidents. *Decision Anal.* 3(2) 76–93.
- Frazier, P. I., W. B. Powell. 2010. Paradoxes in learning and the marginal value of information. *Decision Anal.* 7(4) 378–403.
- Harvey, C. M., L. P. Østerdal. 2010. Cardinal scales for health evaluation. *Decision Anal.* 7(3) 256–281.
- Hazen, G. 2007. Adding extrinsic goals to the quality-adjusted life year model. *Decision Anal.* 4(1) 3–16.
- Hazen, G. 2004. Multiattribute structure for QALYs. *Decision Anal.* 1(4) 205–216.
- Johnstone, D. J. 2007. The parimutuel Kelly probability scoring rule. *Decision Anal.* 4(2) 66–75.
- Keeney, R. L., D. A. Vernik. 2007. Analysis of the biological clock decision. *Decision Anal.* 4(3) 114–135.
- Keisler, J. 2004. Value of information in portfolio decision analysis. *Decision Anal.* 1(3) 177–189.
- Kilgour, D. M., Y. Gerchak. 2004. Elicitation of probabilities using competitive scoring rules. *Decision Anal.* 1(2) 108–113.
- Matheson, D., J. E. Matheson. 2005. Describing and valuing interventions that observe or control decision situations. *Decision Anal.* 2(3) 165–181.
- Merrick, J. R. W. 2009. Bayesian simulation and decision analysis: An expository survey. *Decision Anal.* 6(4) 222–238.
- Merrick, J. R. W., L. A. McLay. 2010. Is screening cargo containers for smuggled nuclear threats worthwhile? *Decision Anal.* 7(2) 155–171.
- Pauker, S. G., J. B. Wong. 2005. The influence of influence diagrams in medicine. *Decision Anal.* 2(4) 238–244.
- Prange, M., W. J. Bailey, B. Couët, H. Dijkpesse, M. Armstrong, A. Galli, D. Wilkinson. 2008. Valuing future information under uncertainty using polynomial chaos. *Decision Anal.* 5(3) 140–156.
- Schervish, M. J., T. Seidenfeld, J. B. Kadane. 2009. Proper scoring rules, dominated forecasts, and coherence. *Decision Anal.* 6(4) 202–221.
- von Winterfeldt, D., T. M. O'Sullivan. 2006. Should we protect commercial airplanes against surface-to-air missile attacks by terrorists? *Decision Anal.* 3(2) 63–75.