



Decision Analysis

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From the Editors...

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From the Editors . . .

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In this issue, Ron Howard proposes revising the language of decision analysis, and several decision analysts provide critical commentaries. Other contributions include three research articles on probabilistic sensitivity analysis, probability elicitation, and corporate risk preferences, respectively.

Key words: decision analysis; editorial

Most of the manuscripts considered for publication in *Decision Analysis* fall into one of three broad categories. First are research contributions that address either theoretical or methodological advances in decision analysis. The second category includes applications that describe the use of decision analysis in new or interesting settings. The final category is one we call “perspective” articles. Our editorial objective for this last category can be succinctly stated as “To present insightful, thought-provoking observations that address the past, present, and future of the field of decision analysis.” Given the nature of this objective, such observations ideally come from thought leaders in the field. We also hope that these perspective articles will generate a certain amount of controversy. After all, there is little to be accomplished by provoking thought if everyone’s thoughts are identical.

The lead article in this issue, by Howard, fits these criteria to perfection. Over the years, like any other technical discipline, decision analysis has acquired a large vocabulary of specialized terminology. Ron Howard has played a major role in shaping the field as well as the language used to apply it, including introducing us to the term “decision analysis.” To the uninitiated this language may be confusing, sometimes interfering with efforts to teach our students or convince decision makers to use it in practice. Howard characterizes many of the terms we use now as “inaccurate, arcane, or unnecessary.” The proposed solution is simple yet radical: He devises a

new language, in some cases substituting new words for old while discarding others. His claim is that this newly devised language is accurate, familiar, and complete enough to encompass the requirements of sound decision making.

Four invited commentaries confirm that Howard’s proposal is indeed controversial, though the reasons for the controversy vary considerably among the commentators. Smith notes that decision analysts do not merely share our language among ourselves. Decision analysts also interact with students, practitioners, and decision makers who have been trained in related fields (e.g., economics, statistics, and engineering). Because these fields share concepts and vocabulary with decision analysis, inattention to those relationships may limit our ability to communicate with important constituencies and lessen our ability to have an impact on decision makers.

Keeney voices similar concerns but places a different frame around the issue. He notes that in consulting situations decision makers often already have a language that they feel comfortable using to discuss their problems. Keeney argues that the most effective approach is “to accept the client’s language for a specific problem and gently educate them about the important concepts using precise language over time.” In contrast, in teaching situations it may be easier to develop a precise language in parallel with the concepts being taught. Keeney makes the important point, however, that students still need to understand the language that other decision makers use and how to make any necessary translations.

Kirkwood echoes many of the concerns voiced by both Smith and Keeney, asserting that while the potential benefits of Howard's proposal may be real, the costs of implementing them would be far greater. He also raises a more fundamental concern: By choice of terms and focus of attention, Howard's language implicitly emphasizes modeling of uncertainty. Other issues, such as problem formulation, nonmonetary decision objectives, and decisions involving multiple stakeholders largely fall outside the scope of Howard's proposal. Many (though not all) decision analysts will find these omissions problematic.

All three of these commentaries raise fundamental questions about the feasibility and practicality of Howard's proposal. In the fourth and final commentary, Brown does not object to the attempt, but does find fault with some of the proposed terms. He also suggests that there may be value in distinguishing personal or subjective uncertainty from uncertainty based on data, and it may sometimes be useful to have ways of discussing uncertainty about probability. These are two distinctions that Howard believes can be ignored. Finally, Brown attempts to expand on Howard's language by proposing vocabulary to represent additional concepts. He even suggests that some credible body (like this journal!) take on the formidable task of certifying and promoting a common lexicon.

Howard provides detailed responses and reactions to these comments. He concludes, "I appreciate this opportunity to present my thoughts on decision language and to hear the comments of some of my colleagues on them. I invite anyone interested in this subject to participate in an evolving discussion." Speaking as editors of *Decision Analysis*, we have no intention of taking Brown up on his suggestion that this journal become the final codifier of our language, but we do plan on having additional discussions of this type. All of us benefit from serious discussions about the nature and evolution of the field of decision analysis.

The next two articles in this issue deal with methodological issues. Felli and Hazen focus on probabilistic sensitivity analysis, where analysts assign probability

distributions to uncertain parameters and then compute the probability of decision change. To date, there have been no graphical tools to display probabilistic sensitivity results analogous to tornado diagrams in deterministic sensitivity analysis. Felli and Hazen introduce such a tool, which they call *javelin diagrams*, discuss their properties, and illustrate their use.

Kilgour and Gerchak address the important problem of how to set incentives when eliciting probabilities from a group of experts. They propose what they call *competitive scoring rules*, which are generalizations of proper scoring rules that have been widely discussed in the literature. Their competitive scheme rewards individuals based on relative rather than absolute quality of the assessment. They note that this places the assessor in a strategic game and address the associated complications.

Finally, Smith addresses the problem of determining corporate risk preferences that reflect the preferences of the company's shareholders. The aggregation of individual risk preferences into an appropriate aggregate tolerance is an important and difficult theoretical problem. The issue has also challenged practitioners working in corporate settings for many years. Smith takes a novel approach: Rather than assuming a corporate utility function, he uses shareholder risk preferences to derive bounds for corporate risk tolerances and certainty equivalents. He also shows that given the assumptions of his model, large corporations with diversified shareholders ought to have much larger risk tolerances than have typically been suggested in the decision analysis literature.

In closing, we were deeply saddened to learn of the passing of a member of our editorial board and dear friend to many in the decision analysis community, Professor Dana T. Clyman of the University of Virginia, in November 2003. Dana was an active and enthusiastic supporter of this journal, having been involved from the earliest stages. In fact, active, enthusiastic, and involved are apt descriptors of how he approached every aspect of his professional and personal life. We join many other friends and colleagues who share this loss.