DECISION-ANALYSIS NEWSLETTER

Published by the ORSA Special Interest Group on Decision Analysis

VOL. 2, NO. 4

July 31, 1983

From The Chair ..

Pete Morris, July 13, 1983

Thanks are due Rex Brown for organizing an interesting group of decision analysis sessions at the Chicago meeting, and to Jim Matheson and Bob Winkler who ended their terms on the Special Interest Group Council. Also, welsome to Jim Dyer and Peter Fishburn who have been elected to replace them.

I would like to elicit suggestions for new Special Interest Group activities. By attending meetings of other ORSA/TIMS groups in Chicago, I learned that there is a wide spectrum of potential roles for the SIG, ranging from hosting regional meetings to sponsoring prize competitions. Several ideas were generated in the SIG Council meeting. I'd like to mention a couple to elicit your comments and suggestions.

We found after some digging that the SIG has been consistensttly under-spending the budget. For example, in 1982 we raised $905 but spent $340. Unspent funds do not carry over from year to year. Based on the activities of other special interest groups and technical sections (grownup special interest groups), we have considerable latitude regarding how to spend the budget. A topic discussed in Chicago was the possibility of sponsoring prize competitions. David Bell and John Lathrop agreed to form a sub-committee to explore this idea and to consider relevant dimensions, such as the population of potential recipients (ORSA/TIMS members, students, etc.), the nature of the award (talks, papers, dissertations, etc.). Please let David and John know if you have any suggestions.

The SIG's principal activity is organizing the decision analysis

(Cont'd next column)

sessions at the national meetings. In the past, relevant information has been passed informally from one organizer to the next, and scheduling has been a chronic problem. Much time and effort has been wasted in tracking down who is responsible for what, and when. Irv LaValle agreed to take a first cut at compiling a workbook to help in organizing meetings and sessions. The workbook will include specific instructions for session coordinators, group coordinators, and program organizers.

Let me know is you have any ideas on these projects, or any other possible SIG activities.

The next national meeting is in Orlando on November 7, 1983 and will be chaired by Jim Dyer. Subsequent meetings will be in San Francisco (May 1984, Lee Merkhofer), Dallas (November 1984, Irv LaValle) and Boston (April 1985, Peter Farquhar). Hope to see you in Orlando!

-- *Pete Morris*

Personal News

Craig W. Kirkwood has become Chair of the Quantitative Systems Department in the College of Business Administration at Arizona State University. His new address and telephone number are:

Quantitative Systems Department
College of Business Administration
Arizona State University
Tempe, Arizona 85287
(602) 965-6359.

Before taking this position, Craig was Manager of the Decision Analysis Group at Woodward-Clyde Consultants in the San Francisco area. He was the founding Secretary/Treasurer of the Decision-Analysis SIG.

SIG Sessions at the Orlando Meeting

As anticipated, Jim Dyer has done an excellent job in arranging for the organization of the following SIG-sponsored sessions at the Otlando ORSA/TIMS meeting:

Quantitative Methods for Financial Decision Analysis -- Patrick L. Brockett
Recent Developments in the Relationship between Behavioral and Normative Decision Theory -- Don N. Kleinmuntz
Secrets of Successful Applications of Decision Analysis -- Richard N. Lund
Decision Analysis in Operations Management -- Herbert Moskowitz
Equity in Social Decisions -- Rakesh K. Sarin
Modeling in Decision Analysis -- Peter A. Morris and Richard D. Smallwood
Empirical Studies of Risk -- Donald A. Wehrung

In addition, we understand that there will be several other sessions -- on negotiations, assessment of subjective probabilities, and contributed papers -- at Orlando. It should be an outstanding meeting!

In the next issue, we should have information about SIG sessions scheduled for the Spring meeting in San Francisco.

Editorial Note

Some twenty years ago, I recall, we students in General Doriot's Manufacturing class were given in no uncertain terms a rule for judging the expense and difficulty of implementing new developments: doing so will either take twice as long and cost three times as much, or take three times as long and cost twice as much, as originally anticipated. Back then, of course, personal computers were only gleams in visionaries' eyes. Nevertheless, the Doriot Rule seems applicable. The word processor upon which I have set up our mailing list is ill adapted to doing two-columnar pages and not at all adapted to my particular printer. But we are moving to a more smoothly operating Newsletter process.

Since some delay is anticipated in getting this issue out, the solicitation sheet ordinarily constituting a tear-off portion of the penultimate page will be deferred to the next issue, to come hard on the heels of this one. But anyone with immediately relevant information should, as usual, send it in to the editor: Irving H. LaValle, School of Business, Tulane University, New Orleans, Louisiana 70118. (504)865-5401.

Recently Available Reports

From Professor Teddy Seidenfeld, Dept. of Philosophy, Washington University, St. Louis, MO 63130:

Calibration, Coherence, and Scoring Rules. Can there be good reasons for judging one set of probabilistic assertions more reliable than a second? There are many candidates for measuring "goodness" of probabilistic forecasts. Here I shall focus on one such aspirant: calibration. To summarize the conclusions: (1) surveys of agents designed to display calibration curves, from which a recalibration is to be calculated, are useless without due consider--ation for the interconnections between questions in the survey; (2) calibration in the long run is otiose. It gives no ground for validating one coherent opinion over another as each agent is (almost) sure of his own long-run calibration. (3) Last, calibration in the short range is an inducement to hedge. A calibration score, in the short run, gives the agent reason to feign violation of total evidence by enticing him to use the more predictable frequencies in a larger finite class than that directly relevant.

From Jacob W. Ulvila, Colgate Darden Graduate School of Business Administration, University of Virginia, Charlottesville, VA 22901:

Analysis of Internal and External Bargaining. Negotiations are often conducted between agents who represent constituencies with diverse interests. Such situations may give rise to two simultaneous negotiations. An internal negotiation may occur within a constituency, and an external negotiation may occur between representatives of different constituencies. This paper examines several questions that arise in such internal and external negotiation situations through analyses of several simple examples. Conclusions drawn from the analyses are then related to the more general situation.

From Robert L. Winkler, Gruate School of Business, Indiana University, Bloomington, IN 47405:

On "Good Probability Appraisers". In this paper, the issue of "good probability appraisers" is investigated. Various types of goodness are discussed briefly in Section 2, and some measures used to evaluate probability forecasts are reviewed in Section 3. In Section 4, the notion of good probability appraisers is related to measures used to evaluate probability forecasts. Results concerning some properties of evaluation measures are presented. Some concluding comments are given in Section 5.

Limits for the Precision and Value of Information from Dependent Sources. [With Robert T. Clemen, Graduate School of Business, Indiana University.] In many inferential and decision-making situations, information is obtained from a number of information sources, and the separate pieces of information are often not independent. In this paper, the impact of dependence on the precision and value of information is investigated. The results indicate that positive dependence among information sources can have a serious detrimental effect on the precision and value of information. Differences in precision between the dependent and independent cases can be remarkably large. With dependence, the incremental value of information decreases very rapidly, and the limiting value of information as more sources are considered is generally considerably less than the expected value of perfect information. The results of this paper have important implications for the acquisition and use of information in decision-making problems.

From Roman Krzysztofowicz, Dept. of Systems Engineering, Thornton Hall, University of Virginia, Charlottesville, VA 22901:

Value of Categorical and Probabilistic Temperature Forecasts for Scheduling of Power Generation. [With Mark G. Alexandridis.] Ralph M. Parsons Laboratory Hydrology and Water Resource Systems Report Number 282, Department of Civil Engineering, School of Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (Available from MIT at a Cost) Bayesian decision models are formulated for the use and evaluation of categorical and probabilistic forecasts of continuous variables. The models are applied to the problem of short-term scheduling of power generation in an electric system on the basis of a single-period temperature forecast. Likelihood functions are constructed using results of experiments conducted at the National Weather Service. The probabilistic forecasting scheme is of the type wherein the forecaster quantifies his degree of uncertainty in terms of variable-width, fixed-probability credible intervals. Each forecasting scheme, categorical and probabilistic, is evaluated in a coupling with two decision procedures: (1) an optimal (Bayesian) procedure which accounts for forecast uncertainty, and (2) a more conventional, nonoptimal, procedure which disregards forecast uncertainty, but which would be optimal if the forecasts were perfect. Numerical examples are presented to illustrate the economic values of both types of forecasts, gains from probabilistic forecasts, and

expected opportunity losses to be incurred by decision makers who ignore forecast uncertainty.

From Lee Merkhofer, Decision Analysis Department, SRI International, Inc., 333 Ravenswood Avenue, Menlo Park, CA 94025:

A Comparative Evaluation of Quantitative Decision-Making Approaches. A variety of qu ntitative decision-making approaches are available for supporting social decisions involving risks. For example, cost-benefit analysis, decision-maker cost-benefit analysis, decision analysis, social decision analysis, supra-decision-maker decision analysis, and applied social welfare theory are a few of the normative decision-making approaches discussed in the literature. This 160-page report describes research designed to aid analysts and others in selection of a specific approach for a given application. The principal components of the report are a description of the social risk-management problem, a characterization of available approaches in terms of their procedures and underlying theories, and a comparison of the approaches based on evaluation criteria that reflect important criticisms and concerns relating to the use of quantitative analysis.

FROM: Dr. I. H. LaValle
School of Business
Tulane University
New Orleans, LA 70118

TO: