

JUDGMENT / DECISION MAKING

NOVEMBER J/DM MEETING. . .

The Annual Meeting of the Society for Judgment and Decision Making will be held November 12-13, 1988 in Chicago. The J/DM meeting will begin Saturday afternoon and will conclude mid-afternoon on Sunday. The program is listed on Pages 5-6 of the Newsletter.

Also of interest to J/DMers is the meeting of the Psychonomic Society, which is being held at the Palmer House in Chicago, November 10-12. On Pages 7-9 we have listed some of the sessions of particular interest.

Serious J/DMers will want to come early in the week to attend the the Society for Computers in Psychology meeting which is being held at the Palmer House on November 9. Of special interest will be papers on the applications of computers in decision analysis which are given by fellow J/DMers. Other papers of interest include those on Expert Systems and the organization of knowledge in experts. For further information, contact Jonathan Vaughan, Department of Psychology, Hamilton College, Clinton, NY 13323 (xfq@CORNELLC).

NEW OFFICERS. . .

The balloting is over and the membership has elected the following new members of the Executive Board who will take office in 1989. Lola Lopes will be the Chairperson-Elect and Baruch Fischhoff has been elected to a three-year term on the Exective Board (1989-1991).

SPECIAL JOURNAL OFFERS. . .

In this issue we are pleased to include two special journal subscription rates for members of the Society for Judgment and Decision Making. *Organizational Behavior and Human Decision Processes* and *Journal of Behavioral Decision Making* have offers for our members that are simply too good to turn down. Information on the special rates is inside.

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SUBMISSION DEADLINE FOR THE NEXT J/DM NEWSLETTER: NOVEMBER 30, 1988

NEWSLETTER

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SOCIETY FOR JUDGMENT AND DECISION MAKING

Executive Board

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 John Carroll, 1986-88
 Duncan Luce, 1987-89
 Paul Slovic, 1988-90
 Stephen E. Edgell, Secretary/Treasurer
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J/DM NEWSLETTER

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FROM THE EDITOR. . .

The *J/DM Newsletter* welcomes submissions from individuals and groups. However, we do not publish substantive papers. Book reviews will be published. If you are interested in reviewing books and related materials, please write to the editor.

There are few ground rules for submissions. In order to make the cost of the *J/DM Newsletter* as low as possible, please submit camera-ready copy. This means that the copy should be typed single-spaced on white 8½ by 11 paper. If possible, use a carbon or film ribbon. Please mail flat -- do not fold.

Subscriptions: Subscriptions are available on a calendar year basis only. Requests for information concerning membership in the Society for Judgment and Decision Making should be sent to Stephen Edgell.

Address correction: Please check your mailing label carefully. Because the *J/DM Newsletter* is usually sent by bulk mail, copies with incorrect addresses or which are otherwise undeliverable are neither forwarded nor returned. Therefore, we have no way of knowing if copies are delivered. Address changes or corrections should be sent to Stephen Edgell.

Mailing Labels: Some readers may wish to send reprint lists or other material to people listed in the directory. Contact Stephen Edgell for details.

Electronic Mail: The editor may be reached through BITNET at "castellan@IUBACS." [Some users may find it either necessary (or more convenient) to address the editor using only the first 8 characters (castella).] BITNET addresses also can be reached from most of the university and research networks. I check for mail several times a day, and a prompt reply to electronic messages is assured. To add your name to the *J/DM Electronic Mail Directory* (or to receive a copy of the electronic directory) contact the Editor.

AGENDA FOR EXECUTIVE BOARD MEETING. . .

This is my last column for the Newsletter. It contains the Agenda for the Executive Board Meeting.

Agenda

1. Participation in the Federation of Behavioral, Psychological and Cognitive Sciences (see below).
2. Establishment of new standing committees, e.g.
 - a. Meeting arrangements committee,
 - b. Program committee,
 - c. Publication committee (newsletter, books, etc.),
 - d. Others?
3. Desirability of meeting with societies with similar interests (Society for Medical Decision Making, ORSA/TIMS, Public Choice, etc.)
4. Change of title of principal elected officer from "Chairperson" to "President."

Reports:

- a. Secretary/Treasurer
- b. Program Chairperson
- c. Newsletter Editor

Members should send their suggestions for the agenda to me at EB344, University of Colorado, Boulder, CO 80309 (or hammondk@COLORADO.BITNET).

Participation in the Federation. This is a serious matter for the membership. First, the Federation is an important representative of the interests of the J/DM Society; it does good deeds from which J/DM members benefit. Second, now that the American Psychological Association is so heavily dominated by practitioners, the interests of the J/DM membership are not likely to be represented effectively by the APA. The need for the Federation is greater than ever. (The role of the newly formed American Psychological Society, consisting largely of academic researchers, is not yet clear.)

But the question of membership in the Federation is not simple. First, the Federation requests annual dues of \$7.00/member of any organization that joins it.¹ Given our very modest financial condition, the \$7.00 will certainly have to come from adding this amount to our dues.

(The Secretary/Treasurer advises me that if an increase is made it should be a \$10.00 increase, thus raising the dues to \$20.00/year.) Second, many of our members belong to organizations (e.g. APA, Psychonomics, etc.) that already belong to the Federation. Thus, if J/DM joins the Federation, these members would be contributing to the Federation more than once. Third, if we must raise our dues (probably doubling them), it is not obvious that membership in the

¹-- Federation dues are \$7.00 per 'relevant' member. Relevant members are U.S. members. Foreign and student members are not counted as relevant members for purposes of Federation membership. -- Editor.

Federation should be the first (and only) objective for the expenditures of the increase - at this time. In any event, there has been no discussion of alternative objectives.

I hope I have formulated the main issues fairly and accurately. In any event, members of the Executive Board will present varying views at the membership meeting.

Although our bylaws state that the annual dues shall be determined by the affirmative vote of "not less than two-thirds of ... the Executive Board" the Board decided in 1987 that this matter was of such importance that it should be determined by a vote of those attending the membership meeting in 1988. Therefore, a motion to join the Federation and to raise the dues (perhaps by \$10.00/member) will be presented at the membership meeting. Should the motion pass, the J/DM Society would assume a second trial membership in the Federation for the year 1989 at a cost of \$500, and assume a full membership at \$7.00 per relevant member in 1990. Should the motion fail, our current trial membership will lapse at the end of 1988.

The Executive Board will meet at 5:00 p.m. at the Midland Hotel on November 11, 1988 (room number not available at this time).

Your new correspondent will be Robyn Dawes, chair for 1988-89.

-- Ken Hammond

TREASURER'S REPORT. . . 7/1/87 - 6/30/88

INCOME

Dues (87)	\$395.00
Dues (88)	4065.00
Dues (89)	200.00
Dues (90)	70.00
Dues (91)	70.00
Dues (92)	70.00
Contributions	15.00
Mailing labels	80.00
Meeting registration	<u>3630.00</u>
TOTAL INCOME	<u>\$9135.00</u>

EXPENDITURES

Newsletter	\$3000.00
Meeting (to hotel)	3612.34
Postage	666.81
Labels	43.02
Office supplies	25.95
Duplicating	111.01
Federation membership	500.00
Travel to Fed meeting	70.27
Chair's expenses	<u>90.74</u>
TOTAL EXPENSES	<u>\$8120.14</u>

BALANCE

Cash on hand (7/1/87)	\$5073.51
Income	+9135.00
Expenditures	<u>-8120.14</u>
Cash on hand (6/30/88)	<u>\$6088.37</u>

Note: \$1600.54 in royalties for the Arkes/Hammond book was received after the end date for this report.

-- Steve Edgell

PROGRAM

ANNUAL MEETING OF THE SOCIETY FOR JUDGMENT AND DECISION MAKING

November 12-13, 1988
 The Midland Hotel
 Chicago, Illinois

SATURDAY, November 12, 1988

Morning Psychonomic Society sessions on Judgment and Decision Making.

Afternoon

1:45-2:00 Opening comments

THOMAS S. WALLSTEN, University of North Carolina

2:00-3:15 IN MEMORY OF CLYDE COOMBS

Comments by *WILLIAM GOLDSTEIN*, University of Chicago, and
ROBYN DAWES, Carnegie-Mellon University

GEORGE AVRUNIN, University of Massachusetts at Amherst:
 "The Structure of Conflict," introduced by *ROBYN DAWES*

~~3:15-3:45 Coffee Break~~

3:45-5:15 Symposium: "Group Decision Making"
 Organized by *JAMES H. DAVIS*, University of Illinois

Participants:

JAMES H. DAVIS: "A History of Theory and Little Data"

GERALD STASSER, Miami University: "The Simulation of
 Collective Judgment and Information Exchange"

MICHAEL BERBAUM, Brandeis University: "Models of Mutual
 Influence in Interacting Groups"

5:15-6:15 Business Meeting

Funding Opportunities: Forging Links with Industry and
 Government: Research Opportunities in the Decision Risk and
 Management Science (DRMS) Program at the National Science
 Foundation:

Howard Kunreuther, Program Director
Robin Gregory, Associate Program Director

At the end of the J/DM business meeting there will be a discussion of research opportunities in the DRMS program at NSF. This program is designed to promote applied research which builds on an interdisciplinary science base for decision making and management. Examples will be presented of the types of projects which are currently being funded under the program. The DRMS program wants to forge new links with industry and government. Proposed new initiatives in this direction will be discussed.

Evening Reception and Cash Bar Hosted by the University of Chicago

SUNDAY, November 13, 1988

Morning

8:00-8:30 Continental Breakfast

8:30-9:45 Dialectic on "Conceptions of Risk Taking," organized by
PAUL SCHOEMAKER, University of Chicago, with *RICHARD MEYER*,
Harvard University

9:45-10:15 Coffee Break

10:15-11:15 *MARK MACHINA*, University of California-San Diego: "Dynamic
Consistency and Non-Expected Utility Models of Choice under
Uncertainty," introduced by *R. DUNCAN LUCE*, University of
California-Irvine

11:15-11:45 *HILLEL EINHORN* YOUNG INVESTIGATOR AWARD WINNER,
Introduced by *GARY McCLELLAND*, University of Colorado

11:45-1:00 Luncheon

Afternoon

1:00-2:00 Chair's Address: *KENNETH HAMMOND*, University of Colorado:
"The Science of Applying Knowledge," introduced by *ROBYN DAWES*,
Carnegie-Mellon University

2:00-3:30 Symposium: "Why Should We Study Gambling Behavior when Gamblers
Violate Our Theories?"
Organized by *WILLEM WAGENAAR*, The University of Leiden

Participants:

WILLEM WAGENAAR: "The Choice among Bets Paradigm as a Cover
Story in Decision Making Studies"

LOLA LOPES, University of Wisconsin at Madison: "Musings on
Amusement and the Uses of Money"

MAYA BAR-HILLEL, The Hebrew University: Discussant

3:30 Adjourn

JUDGMENT AND DECISION MAKING I
 Wabash Parlor, Saturday Morning, 8:00-10:35

Chaired by Barbara A. Mellers, University of California, Berkeley

8:00-8:15 (444)

Psychological Strategies of Expert Decision Makers. JAMES SHANTEAU, *Kansas State University*—Prior studies of expert decision makers have concluded that experts, because of cognitive limitations, are biased, unreliable, and lack self-insight. Based on research in agriculture, business, and health-care, we have found that experts often use strategies which (unknowingly) help them overcome these limitations. Strategies such as reliance on outcome feedback, ability to make adjustments, and use of a divide-and-conquer approach help experts improve performance. These findings have implications for (1) evaluation of expert abilities, (2) design of decision aids, and (3) development of expert systems.

8:20-8:40 (445)

Training Expertise Through Critical Decisions: Firefighting Expertise. LESLIE A. WHITAKER, GARY A. KLEIN, & TIM BAYNES, *Klein Associates*—Inexperienced fire ground commanders were trained to anticipate a veteran commander's fire control decisions. Subject (M-24) saw audio-visual presentations of 7 fires during which each subject made 30 decisions. One training condition provided specialized situation assessments (cues, goal, expectations) obtained from in-depth interviews with the expert commander. The other condition did not provide this information. The goal of the study was to determine the extent to which expert situation assessment is critical to imitate expert decision making.

8:45-9:05 (446)

An Adaptive Approach to Human Decision Making. JEROME R. BUSEMEYER & IN JAE MYUNG, *Purdue University*—If an intelligent and motivated college student is provided ample training with a new decision task that has a well defined optimal solution, what decision rule will this student learn? This question was investigated with a novel task in which subjects were asked to first choose one rule from a small set for classifying fictitious medical patients, and then choose a criterion cutoff corresponding to the chosen rule.

9:10-9:25 (447)

Measurement and Decision-Making. MICHAEL H. BIRNBAUM & SARA SUTTON, *California State University, Fullerton*—In order to make a decision, it is often necessary to trade off values on one dimension against values on another. Procedures for making rational choices recommend calculations on subjective probabilities, values, utilities, and importances of dimensions. This paper discusses current methods for

psychological scaling, and their consequences for decision-making. It is noted that problems that plagued psychophysical scaling become severe when scales obtained using those techniques are exported into the realm of decision-making.

9:30-9:45 (448)

The Role of Security Motivation in Risk Preference. LOLA L. LOPES & DEIDRE L. HUCKBODY, *University of Wisconsin, Madison*—Subjects' preferences were examined for related sets of gain and loss lotteries. For gains, most subjects' preferences were risk averse within both a standard set and a scaled set in which outcomes were multiplied by a positive constant. Preferences became risk seeking, however, for a shifted set in which a positive constant was added to each outcome. Essentially opposite results were found for loss lotteries. These results are interpreted within SP/A theory.

9:50-10:05 (449)

An Empirical Study of Organ Donation Decisions. RICHARD JACKSON HARRIS, JOHN D. JASPER, JAMES SHANTEAU, & STACY SMITH, *Kansas State University*—College students read several brief stories about people faced with the decision about whether to consent to donate organs of their deceased next-of-kin. Results showed that wishes of the donor were weighed more heavily than wishes of the survivors. There was also a "character contamination" effect, in that subjects more highly valued organs of donors of good character and holding attitudes and values similar to their own.

10:10-10:30 (450)

Timed Magnitude Comparisons of Numerical and Nonnumerical Expressions of Uncertainty. DAVID B. BUDESCU, *University of Haifa, Israel*, THOMAS H. WALLSTEN, *University of North Carolina at Chapel Hill*, & AMANDA JAFE-KATZ, *University of Haifa, Israel* (read by Thomas S. Wallsten)—Two experiments involving paired comparisons of numerical and nonnumerical expressions of uncertainty are reported. Numerical comparisons were consistently faster than their nonnumerical counterparts. Distance and congruity effects were obtained illustrating that both numerical and nonnumerical expressions of uncertainty contain subjective magnitude information, and suggesting that similar processes are employed in manipulating and comparing them. To account for the results, Holyoak's Reference Point Model (1978) was generalized, by explicitly including the vagueness of the nonnumerical expressions.

THE ESSENCE OF DECISION. . .

The reporter was interviewing the very successful entrepreneur who also was known as a man of few words:

"Sir, can you tell us how you were able to become a success?"

"Experience."

"I know, sir, but can you tell us more specifically what experiences led to your great success?"

"Good decisions."

"I know, sir, but what experiences led to good decisions?"

"Bad decisions."

As told by Philip Cuthbertson, a retired Director of NASA, and overheard by John Castellan, October, 1988

JUDGMENT AND DECISION MAKING II
Wabash Parlor, Saturday Morning, 10:45-1:10

Chaired by Jerome R. Busemeyer, Purdue University

10:45-11:00 (486)

Self-Insight in Judgment Tasks. BARBARA A. REILLY & MICHAEL E. DOHERTY, *Bowling Green State University* (read by Michael E. Doherty)—Reilly and Doherty (in press) showed that senior level students in accounting were able to identify their own regression policies for job preferences significantly better than chance ($p = 1.84 \times 10^{-6}$). The present work generalizes that finding to students without special quantitative training, to another task (ratings of potential roommates) with different numbers of attributes (6 and 12), and to correlated as well as orthogonal dimensions. People have better insight into their judgment policies than previously supposed, but cannot express that insight.

11:05-11:25 (487)

How Does the Judge See the Problem? J. FRANK YATES, *University of Michigan*, BRUCE W. CARLSON, *Ohio University*, & JU-WHEI LEE, *University of Michigan*—Good experimental procedure demands that every subject view a judgment problem the way the investigator intends. Focusing primarily on likelihood judgments for conjunctive events, this paper presents evidence suggesting that, even under the best of conditions, this ideal often may go unrealized. The analysis implies that, in the laboratory and elsewhere, much of judgment behavior, e.g., conjunction errors, can be explained by how the judge—sometimes idiosyncratically—personally represents the judgment problem that is presented.

11:30-11:40 (488)

The Effect of Irrelevant Information on Utilization of Configural Information. STEPHEN E. EDGELL, PAK C. NG, RANDY D. BRIGHT, & LAURA A. FORD, *University of Louisville*—A series of five experiments studied the effect of additional irrelevant information on the utilization of configural information using nonmetric multiple-cue probability learning. The experiments involved different types of stimuli (unitary or separable), validity levels, and information mixes (only dimensional or configural, or both relevant). Findings showed irrelevant information caused a larger degradation in utilization of configural than of dimensional information. Modifications to the Castellan-Edgell model to account for these findings were explored.

11:45-12:00 (489)

The Judged Risk and Attractiveness of Gambles. BARBARA A. MELLERS, SHI-JIE CHANG, *University of California, Berkeley*, & MICHAEL H. BIRNBAUM, *California State University, Fullerton*—Subjects rated the riskiness and the attractiveness of gambles with some probability of either winning or losing an amount (otherwise nothing). The judged attractiveness and unattractiveness of gambles with potential gains and losses was fairly symmetric. For risk judgments, no such symmetry emerged. Gambles with potential gains were rated as having zero risk by many subjects. Gambles with potential losses showed a different pattern which was quite similar to that found for unattractiveness ratings.

12:05-12:15 (490)

Predicting Periodic and Chaotic Phenomena of Dynamical Systems: Insensitivity to Sample Size. MARY A. METZGER, *University of Maryland, Baltimore County*—Insensitivity to sample size may be an adaptation to limitations on predictability of natural phenomena. Only short-term prediction of variables of complex systems possible. Statistical analysis of sampling distributions is of limited utility. Predictions for evolving systems during periodic and chaotic regimes were obtained from subjects and from a statistical prediction formula. Subjects were more accurate than the formula in all instances. The formula showed negligible increased utility for sample sizes greater than seven.

12:20-12:35 (491)

Accuracy of Probabilistic Inference Using Verbal versus Numerical Probabilities. ROBERT M. HAMM, *University of Colorado, Boulder*—Previous findings, that subjects respond to probabilistic inference word problems using available numbers, suggested base rate neglect might not occur if probabilities were expressed as words. Problems with verbal or numerical probabilities were presented, and subjects estimated $P(H/E)$ using either words or numbers. There were substantially fewer responses using the probabilities available in the problem in the V-V than the N-N condition. Whether verbal or numerical probabilities produced more accurate performance depended on problem context.

12:40-12:50 (492)

Effects of Feedback and Response Mode on the Availability Heuristic. DANIEL P. CHAPMAN, IRWIN P. LEVIN, & BETSY L. BATEMAN, *University of Iowa* (read by Irwin P. Levin)—Research on the availability heuristic shows that frequency of categories with readily retrievable instances is overestimated. In each of two tasks in our study subjects estimated the most frequent category and predicted which category would be selected on each of a series of random draws. The "availability" effect was less for predictions than for frequency estimates and was reduced further with feedback. However, feedback on predictions in Task 1 had little effect on performance in Task 2.

12:55-1:05 (493)

Effect of Prior Examples on Rule-Based Diagnostic Performance. SCOTT W. ALLEN, LEE R. BROOKS, & GEOFFREY R. NORMAN, *McMaster University* (read by Lee R. Brooks)—Medical students learned rules for diagnosing six skin conditions. Four training slides per condition were used, followed by 30 new test slides. Training slides similar to test slides on irrelevant features (not specified in the rules) changed diagnostic accuracy and even featural descriptions of those test slides. A follow-up replicated the main results with a week delay. This suggests that expertise partly consists of interpreted examples, available as close analogies for diagnosing new cases.

PROBLEM SOLVING I
Red Lacquer Room, Thursday Morning, 10:10-12:15

Chaired by Ruth S. Day, Duke University

10:10-10:30 (58)

A Model for Combining Examples and Procedures. STEPHEN K. REED, *San Diego State University*, & CHERYL ACTOR, *Florida Atlantic University*—We studied how successfully students could use an example, procedures, or both to construct equations for word problems that differed from 0-3 transformations from the example. A mathematical model with 3 parameters (the probability of generating a correct value by either matching the example, following a procedure, or using general knowledge) accounted for 94% of the variance for how the 3 instructional groups performed over the 4 levels of transformation.

10:35-10:50 (59)

Alternative Data Representations. RUTH S. DAY & LYNNE T. DIAZ, *Duke University*—Raw data are often coded to facilitate statistical analysis. But is such coding always useful? Subjects worked with data from a problem-solving experiment in two forms, coded or uncoded. These alternative data representations affected subjects' ability to discover subtle but important findings embedded in the data. This research holds implications concerning the role of representative in problem solving/finding, everyday research procedures, and the general process of scientific discovery.

10:55-11:15 (60)

How Are Impasses Resolved While Learning to Solve Problems? MICHELENE T. H. CHI, *University of Pittsburgh*, KURT A. VAN-LEHN, *Carnegie-Mellon University*, & MIRIAM REINER, *University of Pittsburgh*—We analyzed protocols of beginning students' first encounters with problem solving in physics. For each episode of the solution procedure, we identified the sources from which the knowledge was either retrieved or induced. In the majority of the cases, when impasses are encountered, students seek additional information from the text or the examples in the text, and directly apply what was encoded. There were very few instances in which "induction" or "discovery" was evidenced.

11:20-11:35 (61)

Different Superficial Similarities Affect the Access and Use of Earlier Problems. BRIAN H. ROSS, *University of Illinois*—A common view in work on analogical problem solving is that the superficial similarity between the current problem and earlier problems may affect which earlier problem is accessed or selected, but does not affect the use of that earlier problem. The experiments reported here, using probability theory problems, question this view by showing that some superficial similarities may affect use, with little or no effect on access. The implications for novices' understanding are considered.

11:40-11:50 (62)

Scenario and Semantic Ambiguity Effects in the Selection Task. RICHARD A. GRIGGS, *University of Florida*—Margolis's scenario/semantic ambiguity explanation of the poor performance normally observed on Watson's four-card selection task was examined. Reliable facilitation was found for an abstract version of the task when these two ambiguities were eliminated. However, the facilitation was dependent upon the phrasing of the consequent to prevent matching. Violation instructions also contributed to the facilitation. The findings are discussed in terms of Evan's heuristic and analytic processing stage model of reasoning.

11:55-12:10 (63)

Organization Hurts Performance in Simple Conditions, Helps in Complex Ones. LESLIE J. CAPLAN & CARMİ SCHOOLER, *National Institute of Mental Health* (read by Carmi Schooler)—Subjects learned a microcomputer drawing package under different conditions of training organization and practice complexity. An analogical model, provided during training, benefited performance when the logical complexity of the practice condition had been high, but impaired performance when the logical complexity had been low. Similarly, in comparison with a randomized order, organized training stimulus presentation improved performance in a high visual complexity condition, but impaired it in the low visual complexity condition.

PROBLEM SOLVING II
PDR-17, Saturday Morning, 10:30-1:05

Chaired by Steven M. Smith, Texas A&M University

10:30-10:50 (494)

What Does it Mean to Know How Something Works? JOHN B. BLACK, DANIEL L. SCHWARTZ, & LINN MARKS, *Teachers College, Columbia University*—In a series of studies, we examined subjects learning how devices and phenomena work from textual, pictorial, and video materials. The learning process involved constructing images of the device or phenomenon, piece by piece, then learning procedures for animating these images to reason about how the device or phenomenon works. Information was stored in propositional form alone only when full understanding had not been attained.

10:55-11:10 (495)

Externally Aided Memory and Faraday's Problem-Solving Strategies. RYAN D. TWENEY, *Bowling Green State University*—Scientific thinking depends upon the presence of knowledge bases in which organizational structure, retrieval schemes, or both, facilitate activation of appropriate information. External aids are frequently used by scientists for this purpose. Here, Michael Faraday (1791-1867) is shown to have actively developed and continuously refined such aids during his career, proceeding simultaneously toward more simply organized diaries but more sophisticated and complex retrieval aids. There are important implications for an understanding of his laboratory problem solving activities across time.

11:15-11:30 (496)

The Swiss Army Knife: A Prototype of Invention. ROBERT J. WEBER, *Oklahoma State University*—The Swiss Army Knife (SAK) is examined as a prototype of invention and creativity. A frame description indicates that the SAK is composed of numerous and general forms of integration or join. Further, underlying the knife blade component is the abstraction of a sharp point or tooth. A set of spatial transformations applied to the tooth can create the knife and a host of other tools. Powerful invention heuristics are embedded in the SAK.

11:35-11:55 (497)

Testing Causal Hypotheses: Seeking and Using Information. HARRIET L. SHAKLEE, *Eugene Research Institute*—In two related paradigms, subjects sampled data to test hypotheses about a causal relationship, then used such information to draw a conclusion about the relationship. Group data show a number of biases in strategies of information search. Further analyses show that subjects' information search strategies are related to the rules they use to draw conclusions about the causal relationship.

12:00-12:15 (498)

Long-Term Analogical Transfer. RICHARD CATRAMBONE, *Georgia Tech*, & KEITH J. HOLYOAK, *University of California, Los Angeles* (read by Keith J. Holyoak)—Previous research indicates that it is extremely difficult to obtain transfer between analogous but superficially dissimilar problems after a delay or context change. We will present evidence that under appropriate training conditions such transfer can be obtained after a delay of up to one week.

12:20-12:40 (499)

A General Model of Strategy Choice. ROBERT S. SIEGLER & CHRISTOPHER R. SHIPLEY, *Carnegie-Mellon University*—A computer simulation of how people choose strategies was developed. The model acquires knowledge about strategies, problems, and how strategies and problems interact through its problem-solving experience. It uses this knowledge to choose appropriate strategies for familiar problems and to generalize to new ones. The simulation's learning mechanisms produce large changes in frequency with which strategies are chosen and in speed and accuracy. Applications of the model to development of arithmetic and memory skills are discussed.

12:45-1:00 (500)

An Accessibility Interpretation of Fixation and Incubation. STEVEN M. SMITH & STEVEN E. BLANKENSHIP, *Texas A&M University*—Initial failed attempts to solve problems may result in fixation upon inappropriate information or strategies, a phenomenon similar to retrieval blocks caused by output interference. Excess accessibility of inappropriate material which blocks retrieval of needed material may dissipate once the problem is put aside, resulting in incubation. Several experiments will be reported which found incubation effects following artificially induced fixation. Performance is explained in terms of the relative accessibilities of correct and inappropriate material.

POSITION AVAILABLE...

The U.S. Environmental Protection Agency's Risk Communication Program (RCP) is looking for qualified people to join its staff for 1-3 years as part of the Intergovernmental Personnel Act (IPA) Program. The RCP's activities are designed to help people

- put risks in context,
- understand trade-offs between risks and costs,
- become informed participants in individual and community risk reduction decisions, and
- understand residual risks that remain after action.

The RCP has four components. Research is oriented toward understanding how people form their risk perceptions and how alternative forms of communication change these perceptions. Consulting and analysis assists program offices involved in specific risk communication activities, especially in evaluating their effectiveness. Training helps agency staff to incorporate the results from the research and analysis in their ongoing risk communication activities. Outreach for regional and program offices includes a risk communication library and a hotline. Conferences, articles, speakers, and seminars (such as for the media) reach broader audiences.

Under the IPA Program, an employee of a state or local government, a college or university, or other nonprofit organization can be temporarily assigned to (in this case) the RCP. Qualified people could come from several disciplines, such as psychology, communications, marketing, decision sciences, and economics. For further information, please contact Ann Fisher, Manager, Risk Communication Program, PM-221, U.S. Environmental Protection Agency, Washington, D.C. 20460, 202/382-5500.

NEW NEWSLETTER...

The editor of the *J/DM Newsletter* recently received a copy of *SOCIO-ECONOMIC NOTES*, a publication of the Network for the Advancement of Socio-Economics. The purpose of the newsletter is to "exchange information about meetings, publications, and other matters of interest to socio-economists; to provide a forum for the exchange of information involving positions in socio-economics and persons seeking these positions; to explore the desirability of setting up a socio-economic association, annual meeting, and journal.

In a recent issue, there was much that would be of interest to many J/DMers. Individuals interested in the newsletter and the network should contact Arvil Adams, The George Washington University, 515 - 22nd Street, NW, Suite 401, Washington, DC 20037.



Game Theory and National Security

Basil
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STEVEN J. BRAMS and D. MARC KILGOUR

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In this pioneering theoretical work, Steven Brams and Marc Kilgour show how game theory can be applied to the rigorous development and careful analysis of several critical problems that afflict the security of nations, from the deterrence of potential foes to the stabilization of crises that could explode into wars.

Particularly noteworthy are game-theoretic models of Star Wars and arms-control verification, which illustrate applications of mathematics to important current issues.

Distinguishing the book is the deductive character of the analysis, which enables the authors to go beyond basic strategic dilemmas, embellish

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them with a good deal of structure to capture the essential strategic features of the situations they model, and add solutions that are, in some sense, optimal.

"Game Theory and National Security is a very fine book, clearly written in language that people with no technical background should be able to follow. It offers a coherent and original view of national security and adds to a growing literature on the prospects for international cooperation. It will have a significant impact on the study of national security issues."

— Bruce Bueno de Mesquita,
The Hoover Institution, Stanford University

Steven J. Brams is Professor of Politics at New York University and a leading authority in the strategic analysis of international conflict. He has applied game theory to a number of different areas, including the Bible and theology, and has also applied social choice theory to the study of voting and elections and the analysis of a major electoral reform, approval voting. He is

the author or coauthor of eight previous books, including *Superpower Games*, and has worked for the Office of the Secretary of Defense and the Institute for Defense Analyses.

D. Marc Kilgour is Professor of Mathematics at Wilfrid Laurier University in Waterloo, Canada, and adjunct professor of systems design engineering at the University of Waterloo. His research interests are in mathematical modelling, principally conflict modeling and game theory. He has written widely in these areas as well as in social choice theory, in which he has applied game theory to the formal analysis of constitutions and voting power.

Game Theory and National Security
By Steven J. Brams and D. Marc Kilgour
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SURVEY OF GDSS. . .

The following paper will be of interest to many of our readers:

Kraemer, K. L., & King, J. L. (1988). Computer-Based Systems for Cooperative Work and Group Decision Making. *ACM Computing Surveys*, 20, 115-146.

"Application of computer and communication technology to cooperative work and group decision making has grown out of three traditions: computer-based communications, computer-based information service provision, and computer-based decision support. This paper reviews the group decision support systems (GDSSs) that have been configured to meet the needs of groups at work and evaluates the experience to date with such systems."

from the abstract

The bibliography includes over 125 references.

SOCIETY FOR JUDGMENT AND DECISION MAKING

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