

JUDGMENT / DECISION MAKING

J/DM MEETING: NOVEMBER 15-16

The 1992 J/DM meeting will be at the Adams Mark Hotel in St. Louis, November 15-16. The tentative schedule appears in this issue on pp. 9-11. The program includes the popular Poster Session and a new Teaching Forum, both scheduled for Sunday evening. Tentative titles and abstracts for the posters appear on pp. 12-18. Information and a registration form for the Teaching Forum are on pp. 3-4. Please look these over and plan to attend. The program committee members are Barbara Mellers, George Loewenstein, and Colin Camerer.

IMPORTANT J/DM BUSINESS

Please note the three items in this Newsletter requiring your attention, and that the three have different deadlines:

HOTEL RESERVATIONS for the St. Louis meeting. Information is on p. 21. These are due October 15.

MEETING REGISTRATION for the St. Louis meeting. Information is on p. 19. This is due October 31 to avoid a late fee.

ELECTION BALLOT for the President-elect and Executive Board positions of the J/DM Society. Ballot is on p. 23. This is due November 7.

Why not do all three NOW, while you are thinking about it? Remember, hotel reservations go to the hotel, the other two items go to me. Thanks.

---Terry Connolly

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SUBMISSION DEADLINE FOR THE NEXT J/DM NEWSLETTER: October 23, 1992

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Number 2
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SOCIETY FOR JUDGMENT AND DECISION MAKING

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J/DM NEWSLETTER

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FROM THE EDITOR. . .

The *JIDM 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 However, we do not publish substantive papers.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 *JIDM 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. A better alternative is to submit your contribution via EMAIL or in an ASCII file on a 3.5" or 5.25" diskette.

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 Terry Connolly.

Address correction: Please check your mailing label carefully. Because the *JIDM 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 Terry Connolly.

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

J/DM Electronic Mail Directory: The Society maintains an EMAIL directory. To add your name to the *JIDM Electronic Mail Directory* (or to receive a copy of the electronic directory) contact Terry Connolly.

CALL FOR PARTICIPATION

"Teaching Forum"

Society for Judgment and Decision Making
 1992 Annual Meeting
 St. Louis, Missouri

Sunday Evening, November 15, 1992

The future of judgment and decision making as a field depends heavily on how many students we teach and how well we teach them. It thus seems that the annual meeting should include activities that encourage an exchange of teaching ideas. Such is the primary aim of a new, experimental feature of this year's annual meeting, a teaching forum.

The forum will be held on the first night of the meeting, Sunday, November 15, in the same room and at the same time as the poster session.

- All attendees at the annual meeting will be urged to participate in the forum.
- Forum "contributors," who will be listed in the printed program for the annual meeting, are asked to bring at least 25 copies of one or more of the following:
 - A course syllabus;
 - A teaching technique note discussing such things as (a) a demonstration, (b) an explanation of a phenomenon, (c) a real-world illustration of a principle, (d) an exercise, or (e) a computer program;
 - A teaching issue note addressing matters such as distinctions between the demands of liberal arts and engineering undergraduates, the differing needs of professional and Ph.D. students, increasing class enrollments, and dealing with diverse mathematical skills.
- Copies of materials brought by contributors will be made available on tables in the meeting room and can be collected at participants' leisure. Spaces for contributors' materials will be labelled as such. Contributors can bring software and personal computers with which to demonstrate it. Note, however, that we are unable to supply specialized technical assistance or equipment.
- Contributors will be asked to spend most of the session in the vicinity of their designated locations. Participants and contributors will be encouraged to socialize and discuss teaching and anything else in a relaxed, comfortable atmosphere.

If you wish to be a contributor, please complete the form on the next page and send it to Frank Yates no later than October 1. If you have questions about the forum, feel free to contact either Frank Yates or Colin Camerer.

Pertinent addresses and numbers:

Frank Yates
 Judgment and Decision Laboratory
 Department of Psychology
 University of Michigan
 330 Packard Road
 Ann Arbor, MI 48104-2994 USA
 Bitnet: USERGB1W@umichum
 Phone: 313-763-2092
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 Chicago, IL 60637 USA
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TEACHING FORUM REGISTRATION FORM

Society for Judgment and Decision Making
1992 Annual Meeting
St. Louis, Missouri
Sunday Evening, November 15, 1992

Name: _____

Affiliation: _____

Address: _____

Telephone Number: _____

E-mail address: _____

Fax Number: _____

Please check which of the following (25 copies of each) you plan to bring to the event:

_____ Syllabus (Course Title: _____
_____)_____ Teaching Technique Note (Title: _____
_____)_____ Teaching Issue Note (Title: _____
_____)_____ Computer Program (Title: _____
_____)

Comments:

Notes should be prepared according to the following broad guidelines: (i) no more than 2 pages; (ii) include author's name, affiliation, address, phone number, e-mail address, fax number; (iii) state the concept, issue, or problem; (iv) describe and illustrate the proposed technique or solution and perhaps a rationale; (v) present "evidence" of efficacy when available; (vi) include attachments as appropriate, e.g., newspaper clipping, classroom handout.

No later than THURSDAY, OCTOBER 1, please mail form to:

Frank Yates
Judgment and Decision Laboratory
Department of Psychology
University of Michigan
330 Packard Road
Ann Arbor, MI 48104-2994 USA

President's Column

ARE WE SERIOUS ABOUT TEACHING DECISION MAKING?

Recently, I have been concerned about how decision-making skills are taught by academics, and particularly psychologists. I am struck by what seems to be a paradox. In teaching many decision-making skills, we ignore basic *psychological* principles of skill learning that have been well known for years. My guess is that most students don't learn much or, at least, their knowledge has a short half-life. And when I say students, I include the many business people and other professionals who also attend courses each year.

By decision-making skills, I mean two things. One is specific techniques such as MAUT-type models which I believe can be and sometimes are taught quite successfully using methods that would be approved by learning theorists. Instruction is followed by exercises and then applications from which students get feedback.

The second and, in my view, more important set of skills I call "ways of thinking." By this I mean the ability to reason, *when faced by real problems*, in accord with the canons of probability theory, deductive logic, and the principles of economic "common sense" (or at least to recognize when one departs from these principles). Another way of stating this might be a general ability to "reframe" problems so that one does not commit many of the kinds of errors documented in the decision-making literature. This includes recognizing sunk costs, understanding the effects of sample size on inferences as well as regression effects, using base rates appropriately, avoiding framing effects in choice, expressing appropriate confidence in judgment, being consistent in judgments across response modes, seeking disconfirmation of one's hypotheses, and so on.

But think for a moment how our students are introduced to these skills and then compare this process with what we know in psychology about the learning of skills in general. There are two main methods. One is to teach formal methods of decision making (e.g., techniques of decision analysis) and then to trust that appropriate ways of thinking will somehow emerge. In fact, in some cases I believe such learning does take place. But this requires very smart students or lots of coursework. (Academics have typically been through or taught many courses!)

The other method consists of exposing students to clever examples that demonstrate human proclivities to make errors. This is followed by exhortations not to make errors and then, perhaps, a chance to recognize further examples of fallacious thinking. This method has an inbuilt assumption that students have already been exposed to and understand the principles underlying ways of thinking. Exposure, however, should not be equated with understanding.

In other words, teaching ways of thinking is typically not done in accordance with psychological principles of skill learning where students first learn the rudiments of the skills and then have the opportunity to practice these many times with good feedback. Recall, for example, those exercises you used to do when learning math skills or the tenses of verbs in a foreign language.

Now I am not saying that it is easy to set up systems that teach people ways of thinking that provide good opportunities for practice and feedback. There are several major hurdles. One is that it takes time to develop skills and the skills of ways of thinking are not as easily packaged as the use of techniques in, say, math or foreign languages. Another is to find ways of helping people learn these skills as they deal with problems in their everyday lives. A further obstacle is the lack of good feedback in many real-world situations. Motivation is also an issue. How do you get people to take the time to learn the skills in a way that is meaningful and can generalize across situations?

The field of judgment and decision making has done a good job of documenting the cognitive difficulties we all have in making decisions. There are also several good techniques available for handling specific types of problems, e.g., MAUT, bootstrapping. What I believe we need to do now is rethink how we teach the "ways of thinking" component of decision-making skills.

--- Robin Hogarth

FUNDING AVAILABLE

UNDERGRADUATE PAPERS IN JUDGMENT AND DECISION MAKING:

Why pay for photocopying, computer time, or subjects for your undergraduate students when you can introduce them to the pleasures of grant writing?!

The Center for Decision Research will award three \$150 grants for undergraduate research projects in judgment and decision making.

To apply, students should submit a short proposal (which should not exceed five pages) to the Center for Decision Research at the address below. Final deadline for proposals is February 15, however we will make decisions about grants on an ongoing basis, so students are encouraged to apply earlier if they need money before that time. All applicants will receive comments on their proposal from people at the Center. (Introduce your students to the thrills and agonies of referee remarks!)

Preference will be given to upperclassmen (e.g., senior honors projects), but undergraduates at any stage in their studies are encouraged to apply.

For more information, contact:

Chip Heath
Center for Decision Research
Undergraduate Research Program
1101 East 58th St.
Chicago, IL 60637
(312) 752-6418

POSITIONS AVAILABLE

PROGRAM DIRECTOR:

METHODOLOGY, MEASUREMENT, & STATISTICS IN THE SOCIAL SCIENCES

NATIONAL SCIENCE FOUNDATION: SOCIAL, BEHAVIORAL, & ECONOMIC SCIENCE DIRECTORATE

NSF is seeking qualified applicants for the position of Program Director for the Methodology, Measurement, and Statistics in the Social Sciences program under the terms of the Visiting Scientist Program. This position will be filled on a one- or two-year basis. The Program Director will be responsible for program planning, research proposal evaluation, administration of research grants, and liaison with other federal agencies. Management of research activities will be accomplished primarily through federal grants and contracts to academic, non-profit, and private institutions.

Applicants must have a Ph.D. and at least six years of social science research experience beyond the Ph.D. with an emphasis on quantitative methods. In addition, some administrative experience is desirable. Possible research specialties include, but are not restricted to, applied statistics (in social sciences), psychometrics (except educational testing), econometrics or applied econometrics, sociological methodology, political science methodology, survey research methodology, and social statistics.

For technical information about the position, contact: *Dr. James Blackman, Deputy Director, Division of Social and Economic Science, National Science Foundation, 1800 G St. NW, Room 336, Washington, DC 20550. (202) 357-7966.*

For a recent description of the MMSSS program, see *Amstat News*, June 1992, pp. 1-2.

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL OF BUSINESS:

The school is seeking to fill two tenure-track positions at the Assistant Professor or a more senior level.

(1) *Organizational Behavior*. We are particularly interested in candidates with interests in group-level phenomena and organizational decision-making processes. (2) *Behavioral Decision Making*. We are looking for candidates with interests in the cognitive psychology of decision making and problem solving in individuals and/or groups. Candidates for either position should have a strong research orientation, and a strong background in cognitive, social, and/or organizational psychology. Teaching responsibilities will include an introductory course in behavioral science for MBA students and the development of more advanced courses for MBAs and PhDs. Advanced courses could be closely related to ongoing research interests. Interested applicants should send a vita, one written sample of recent research, and names and telephone numbers of three references. Up to three letters of reference may be sent with the application, or separately. Send materials to: *R. M. Hogarth, Graduate School of Business, University of Chicago, 1101 East 58th Street, Chicago, IL 60637*. To guarantee consideration, all materials must be received by January 4, 1993. An Equal Opportunity/Affirmative Action Employer.

PSYCHONOMIC SOCIETY SESSIONS

SYMPOSIUM II: REASONING AND DECISION MAKING
St. Louis Ballroom D, Saturday Afternoon, 1:30-3:35

Chaired by Eldar Shafir, Princeton University

1:30-1:50 (368)

The Elusive Wishful Thinking Effect. MAYA BAR-HILLEL, *Hebrew University*, & DAVID V. BUDESCU, *University of Haifa*—Subjects read short stories, each story describing two contestants competing for some desirable outcome (e.g., firms competing for a contract). Some judged the probability that A would win, others judged the desirability that A would win. Factors enhancing a contestant's desirability had no normative bearing on its winning probability. The "wishful thinking" hypothesis predicts that, ceteris paribus, the favored contestant would be judged more likely to win. No such effect was found.

1:55-2:15 (369)

Focusing in Reasoning and Decision Making. P. N. JOHNSON-LAIRD, *Princeton University*—Human decision makers reason to make decisions, and their reasoning depends on the construction of mental models of the options. Reasoning and decision making should therefore give rise to similar phenomena. One such phenomenon is referred to as "focusing": Individuals are likely to restrict their thoughts to what is explicitly represented in their models. Focusing occurs in three domains. (1) Individuals fail to draw inferences in the modus tollens form (if p then q, not-q, therefore not-p) because they focus on their initial models of the conditional, which make explicit only the case in which the antecedent and consequent occur. (2) In Wason's selection task, they similarly tend to select only those cards that are explicitly represented in their initial models of the conditional rule. (3) Their requests for information to enable them to decide whether or not to carry out a certain action are focused on the action to the exclusion of alternatives to it. In each case, the focusing bias can be reduced by certain experimental manipulations.

2:20-2:40 (370)

Judging the Utility of Past Episodes. DANIEL KAHNEMAN, *University of California, Berkeley*—The evaluation of the overall hedonic quality of past episodes plays a significant role in determining choices for the future. Temporal integration of momentary affect is a plausible normative rule for such evaluations, but retrospective evaluations generally violate this rule. Except when it is singled out as the major dimension ("hours of labor"), the duration of experiences is largely neglected in their evaluation. Because trend is important and duration is not, it is sometimes possible to improve the evaluation of an unpleasant episode by adding diminishing pain to it. Decisions that maximize the anticipated quality of memories do not necessarily maximize the quality of experience.

2:45-3:05 (371)

Reflective Choice: Reasons in Decision Making. ELDAR SHAFIR, *Princeton University*, & AMOS TVERSKY, *Stanford University*—Preferences are often constructed, not merely revealed, during the making of decisions. The construction of preferences is partially guided by an attempt to formulate coherent reasons for choosing one option rather than another. We explore the role of reasons and arguments in decision making. In particular, we investigate the ability of a qualitative analysis based on reasons to explain decisions that are puzzling from the perspective of a quantitative analysis based on value.

3:10-3:30 (372)

Category Based Judgment of Probability. EDWARD E. SMITH, *University of Michigan*, ELDAR SHAFIR, *Princeton University*, & DANIEL OSHERSON, *IDIAP*—In a category-based argument, the premises and conclusion are of the form *All members of C have property P*, in which C is a natural category. An example is *Collies have sesamoid bones. Therefore German Shepherds have sesamoid bones*. In this example, the property is unfamiliar or "blank," and in making probability judgments about such arguments, people rely heavily on similarity relations between the categories. In contrast, when the property is more familiar (e.g., *Collies can bite through wire*), people rely heavily on the relation between property and category information.

JUDGMENT/DECISION MAKING I

St. Louis Ballroom D, Saturday Afternoon, 3:45-4:50

Chaired by Valerie F. Reyna, University of Arizona

3:45-4:05 (396)

What Do Experts Think About Expert Decision Makers? JAMES SHANTEAU, *Kansas State University*, & MOHAMMAD J. ABDOL-MOHAMMADI, *Bentley College*—Little is known about how experts view expert decision makers. Three groups of auditors, varying in professional status, were asked first to list all attributes they considered important in an expert auditor and second to evaluate the importance of 20 prespecified attributes. Unexpectedly, the results for the three groups were similar: cognitive/knowledge attributes were considered most important, followed by self-presentation/image and strategic/decision-making attributes, with personal appearance/style characteristics considered least important.

4:10-4:25 (397)

Expert-Novice Confidence on Judgment Under Uncertainty. M. J. GONZALEZ LABRA, I. ARTIETA PINEDO, & A. J. GARRIGA TRILLO, *Universidad Nacional de Educación a Distancia*—Research on experts and novices has shown that experts exhibit more confidence on their judgments than novices. This study analyzed whether expert and novice midwives maintain this pattern across two different tasks: (1) clinical cases in which symptoms had to be weighted and a diagnosis was required, and (2) problems based on obstetric cases that might induce biases in reasoning. Results indicate different confidence patterns depending on type of clinical case and bias.

4:30-4:45 (398)

Efficient Use of Working Memory Capacity Contributes to Expert Performance. ROBERT M. HAMM, *University of Oklahoma Health Sciences Center*, & CHARLES ABERNATHY, *University of Colorado Health Sciences Center*—"Mental capacity" can account for experts' greater abilities, on several levels. First, experts' larger chunks and ability to use LTM to extend working memory allow the "same" representation to take up less capacity. Second, differences in spare capacity due to expert knowledge can contribute to expert-novice performance differences, just as preexisting capacity differences account for differences in good versus bad readers' performance (Just & Carpenter, 1992, *Psychological Review*, Vol. 99). Expert and novice surgeons provide examples.

JUDGMENT/DECISION MAKING II
St. Louis Ballroom D, Sunday Morning, 8:00-10:30

Chaired by James Shanteau, Kansas State University

8:00-8:15 (503)

Varieties of Subjective Probability. ROBERT S. LOCKHART, *University of Toronto*—Two distinctions are used to identify different forms of subjective probability. The first distinguishes subjective probabilities that are acquired through repeated exposure to outcomes from those acquired as facts or derived rationally. The former type of subjective probability might be termed procedural or implicit; the latter declarative or explicit. The second distinction is between subjective probabilities construed as propensities versus relative frequencies. Experimental results are described that document the value of these distinctions.

8:20-8:35 (504)

Aggregate Judgment Under Uncertainty: Weighting by Graininess and Discounting of Opinions. ILAN YANIV, *University of Chicago*—People often poll the opinions of knowledgeable individuals before making major decisions (e.g., surgery, investment). Opinions are frequently uncertain and/or incompatible. Our studies and computer simulations suggest that (1) in forming aggregate opinions, people weight judgments by their graininess (interval width) and discount outlying opinions and (2) a weighting and trimming scheme is relatively accurate. These results are related to the view that judgment under uncertainty involves a tradeoff between accuracy and informativeness.

8:40-9:00 (505)

A Conflict Model of Confidence. ELKE WEBER, *University of Chicago*, & ULF BÖCKENHOLT, *University of Illinois at Urbana-Champaign*—Confidence by physicians that a list of hypotheses generated about a clinical case contained the correct diagnosis was a function of the degree of conflict between alternative hypotheses. Confidence was highest when doctors strongly believed in only one hypothesis and lowest when they entertained two strong competing hypotheses. Availability of a diagnosis (by having previously diagnosed a similar case) did not increase confidence. Overall confidence first increased and then decreased with years of clinical practice.

9:05-9:20 (506)

Defining and Teaching Objectively Accurate Confidence Judgments. GEORGE SPERLING & HAI-JUNG WU, *New York University*—High confidence is equivalent to being willing to accept risky bets with high stakes; low confidence is equivalent to accepting only conservative bets with low stakes. Betting principles can be applied to define arbitrary confidence intervals. We trained subjects to make objectively accurate confidence judgments (using experimenter-defined intervals) by giving the subjects feedback about outcomes. Recommendation: Experiments that record confidence judgments should incorporate this feedback procedure to assess and insure the fidelity of the judgments.

9:25-9:45 (507)

Cross-National Variation in Probability Judgment. J. FRANK YATES, *University of Michigan*, JU-WHEI LEE, *Chung Yuan Christian University, Taiwan*, & HIROMI SHINOTSUKA, *Hokkaido University, Japan*—People's probability judgments that they have correctly answered general knowledge questions are typically too high. Such apparent overconfidence is almost always stronger in some countries than in others, for example, in China as compared with the U.S. The present research evaluated the hypothesis that such differences are due to cross-national variation in dominant cognitive strategies, such as spontaneously considering both the pros and cons of the available options.

9:50-10:05 (508)

Group Decision Making: Analysis of the Ideal Group. ROBERT D. SORKIN & HUANPING DAI, *University of Florida*—Group decision making was modeled using multichannel signal detection theory. The optimum decision statistic is $\sum_{i=1}^m a_i x_i$, where m is the group size, x_i is the member's observation, and a_i is a decision weight dependent on the member's detectability, d'_i . Group d' depends on m , d'_i , and the correlation between members' observation. Inaccurate knowledge of d'_i can yield nonoptimal weights. Juries and other groups may acquire information about x_i and d'_i through deliberation.

10:10-10:25 (509)

Judgments of Film Quality Based on Critics' Comments and Personal Viewing Experience. IRWIN P. LEVIN, GARY J. GAETH, CHIFEI JUANG, & S. V. BALACHANDER, *University of Iowa*—Subjects viewed a sample film clip and/or read critics' comments about a movie. Although self-reports indicated that a sample clip was more important than critics' comments, evaluations were more heavily influenced

by critics' comments than by the film clip. An averaging model with greater weight for the more recent information described how film clip and critics' comments were combined. Outside sources appear to have directive influence on the way we reevaluate ambiguous information.

JUDGMENT/DECISION MAKING III
St. Louis Ballroom D, Sunday Morning, 10:40-12:55

Chaired by Elke Weber, University of Chicago

10:40-11:00 (548)

Is Choice the Correct Primitive? R. DUNCAN LUCE, *University of California, Irvine*, BARBARA A. MELLERS, & SHI-JIE CHANG, *University of California, Berkeley*—Choices among gambles are treated as derived from certainty equivalents (CE). Assume CEs are described by Luce's (1992) rank- and sign-dependent theory; a theory of reference levels (RL) is axiomatized; and each gamble in a choice set is recast in terms of deviations from the RL and reevaluated. The choice is based on these CEs. The model admits well-known anomalies, and is applied with some success to data of Mellers, Chang, Birnbaum, and Ordóñez (1992).

11:05-11:25 (549)

Selective Processing Effects and Theories of Choice. VALERIE F. REYNA, *University of Arizona*—Theories generally assume that choices depend on the psychophysics of quantities (e.g., sums of money), an assumption that is violated by selective processing effects. When subjects selectively processed relevant quantities, the usual phenomena of choice (e.g., reflection effects) disappeared. However, when the zero-outcome complement of gambles was selectively processed, choice phenomena were augmented. Results ruled out ambiguity, and favored an intuitive account of choice.

11:30-11:50 (550)

The "Position Effect" in Resource Dilemmas. DAVID V. BUDESCU, *University of Haifa*, AMNON RAPOPORT, *University of Arizona*, & RAMZI SULEIMAN, *University of Haifa*—We report results of several resource dilemma experiments combining features of the simultaneous and the sequential protocols. Play is conducted sequentially, but players are not given information regarding the previous requests. Strategically, this protocol is equivalent to a simultaneous one, yet empirical results indicate the existence of the "position" effect characterizing sequential games: Players' requests correlate with their positions. The effect is replicated with $n = 2, 3, 5$ players and when the resource size varies randomly.

11:55-12:10 (551)

Effects of Information and Instructions to Disconfirm on Hypothesis Testing. HUGH GARAVAN & MICHAEL E. DOHERTY, *Bowling Green State University* (read by Michael E. Doherty)—Science students attempted to discover the laws of a computer-based "artificial universe" in which moving particles are deflected by invisible boundaries surrounding geometric figures. Instructions (disconfirm vs. test hypotheses) and stage of knowledge (early vs. advanced, manipulated by providing subjects in the advanced group with the results of prior observations) were crossed in a 2×2 design. Unexpectedly, disconfirmation instructions hindered performance, while knowledge had no impact. The expected interaction did not materialize.

12:15-12:30 (552)

Human Contingency Judgments: Reanalysis. LORRAINE ALLAN, *McMaster University*—Normative models view humans as intuitive statisticians who base contingency judgments on a rule integrating information from the 2×2 matrix. Allan and Jenkins (1983) conducted an extensive rule analysis of their data. It will be shown that associative models, developed to describe animal conditioning, can account for the data reported by Allan and Jenkins. This reanalysis is consistent with recent studies indicating that human contingency judgments can be explained using associative learning principles.

12:35-12:50 (553)

Probability Matching in Probabilistic Mental Models. NIGEL HARVEY & RICHARD RAWLES, *University College, London*—People answered almanac questions, judged confidence in their answers, and estimated difficulty of questions for peers. An item's difficulty is the proportion of subjects answering it correctly. Simulations showed the distribution of item difficulties (and other aspects of the results) could not be explained by Gigerenzer et al.'s probabilistic mental model theory without the following modification: The alternative with the higher cue validity must be selected—not always, but with a probability equaling its validity.

Tentative JDM Schedule

Sunday, November 15

11:30 am Graduate Student Lunch (Anyone interested should meet at the Registration Desk of the Adams Mark Hotel.)

1:00 pm JDM Meetings Begin

1:00-2:00 Invited Address: Richard Zeckhauser, Harvard University
Introduced by Dick Thaler

Nonrational Actors and Financial Market Behavior

1:45-2:00 Discussion

2:00-3:30 Symposium: Dynamic Models of Preference
Organizer, Jerry Busemeyer

2:00-2:10 Introductory Remarks, Jerry Busemeyer

2:10-2:30 Jim Townsend, Indiana University and Jerry Busemeyer, Purdue University
Decision Field Theory: A Dynamic Cognitive Approach to Decision Making Under Uncertainty

2:30-2:50 Paolo Gaudiano, Boston University
Neural Dynamics of Decision Making Under Risk

2:50-3:10 Steven Sherman, Indiana University
The Role of the Comparison Process in the Resolution of Choice Conflict

3:10-3:30 Discussion

3:30-4:00 Coffee Break

4:00-5:00 Invited Address: Richard Herrnstein, Harvard University
Introduced by Duncan Luce

What Preferences Reveal

4:45-5:00 Discussion

5:00-5:30 New Investigator Address
Introduced by Irwin Levin

5:30-6:30 Business Meeting

6:30-8:30 Poster Session and Teaching Forum

Monday, November 16

8:00-8:30 am Continental Breakfast

8:30-9:45 Symposium: Probability Evidence in the Law
Organizer, Jay Koehler

8:30-8:45 David Schum, George Mason University
Sacco and Vanzetti Meet Wigmore and Bayes

8:45-9:00 Gary Wells, Iowa State University
The Role of Base Rates and the Probability of False Eyewitness
Identification

9:00-9:15 William Thompson, UC Irvine
Interpreting DNA Tests: The Reverend Bayes Meets RFLP Analysis

9:15-9:30 Jay Koehler, University of Texas at Austin
Blood, Semen, and Hairs: The Significance of Probabilistic
Matches in the Courtroom

9:30-9:45 Discussion

9:45-10:15 Coffee Break

10:15-11:30 Invited Address: Gerd Gigerenzer, University of Chicago

Where Do We Go From Here? After Heuristics and Biases

11:00-11:15 Commentary by Daniel Kahneman, UC Berkeley and Reply by Gigerenzer

11:15-11:30 Discussion

11:30-1:00 Lunch

12:00-12:45 Presidential Address (in the Lunch Room): Daniel Kahneman, UC Berkeley
Introduced by Baruch Fischhoff

The Utility of Experience

12:45-1:00 Discussion

1:00 Adjourn to Meeting Room

1:00-2:45 Symposium: Intelligent Normative Systems Based on Good Judgments of
Probabilities
Organizer: Ward Edwards

1:00-1:10 Introductory Remarks, Ward Edwards

1:10-1:40 David Heckerman, UCLA
PATHFINDER: A Normative System for Diagnosis in Pathology

1:40-2:10 Todd Levitt, Information Extraction and Technology, Inc.
Probabilistic Reasoning in the Imagery Exploitation System

2:10-2:20 Ward Edwards, University of Southern California
HAILFINDER: A Nascent Normative System that Hopes to Predict
Severe Weather in Eastern Colorado

2:20-2:30 Dave Schum, George Mason University, Discussant

2:30-2:45 Discussion

2:45-3:00 Short Coffee Break

3:00-4:00 Individual Papers
Chair: Zur Shapira

3:00-3:20 Jon Baron, University of Pennsylvania, Ilana Ritov, Ben Gurion University,
and Mark Spranca, UC Berkeley
Omission Bias and Related Phenomena

3:20-3:40 Mark Spranca, UC Berkeley
The Complicated Effect of Frequency on Moral Judgment

3:40-4:00 Tom Wallsten, University of North Carolina at Chapel Hill, Ido Erev,
Technion: Israel Institute of Technology, and David Budescu, University
of Haifa
Simultaneous Overconfidence and Conservatism in Judgment:
Implications for Research and Practice

4:00-5:00 Individual Papers
Chair: Carolyn Jagacinski

4:00-4:20 John Carroll, M.I.T.
How Taxpayers Think About Their Taxes: Frames and Values

4:20-4:40 George Wu, Harvard University
Temporal Risk and Probability Weights

4:40-5:00 Sandra Schneider-Wright, University of South Florida
What's in a Frame? Assessing the Cognitive Impact of Positive and
Negative Descriptive Frames

POSTER PRESENTATION TITLES, AUTHORS AND ABSTRACTS
(PRELIMINARY)

"The Decision to Seek Medical Treatment: Traditional vs. Non-Traditional Students," Mark Anspach, Kansas State University, James Shanteau, Kansas State University, & Melissa Urban, Kansas State University.

Decisions to seek treatment for medical illness were compared between traditional and non-traditional students. Subjects were presented with descriptions of hypothetical illness situations and responded to questions representing each stage of a three-stage treatment decision model. Results indicated that while overall patterns of response between the two groups were very similar, differences were found in heart attack situations and for the effects of prior experience and the advice of others.

"Calibration of Survival Estimates: Patients, their Surrogates, and their Physicians," Hal R. Arkes, Ohio State University, Theodore Speroff, Case Western Reserve University, Neal V. Dawson, Case Western Reserve University, & Alfred F. Connors, Jr., Case Western Reserve University.

543 seriously-ill patients, their decision-making surrogates (e.g., spouse), and their physicians all estimated the patients' probabilities of surviving 2 months. Estimation performance was compared to that of a validated 4-strata proportional hazards model. Patients were optimistic. The average absolute value of the predictions' deviations from actual outcome was greatest for patients and surrogates. The physicians' calibration was similar to the model. The same pattern of results occurred for 6-month survival estimates.

"Whad'ya Get on the Test? A Three-Exam Forecasting Task," Holly Arrow, University of Illinois at Urbana-Champaign & Phanikiran Radhakrishnan, University of Illinois at Urbana-Champaign.

During a 15-week class, students predicted their scores on three exams. A week before and just after each exam, they provided point estimates with 90% confidence ranges. They also predicted the class average. Preliminary analysis indicates that students typically revised their predictions downward right after each exam. Students were as hypothesized, overconfident in their predictions (ranges too narrow). However, their predicted exam scores were typically at or below the average score predicted for the class.

"Graham Greene, Russian Roulette, Bomb Parties and Probabilistic Reasoning," Peter Ayton, City University London & Alastair McClelland, University College, London.

Here we present an analysis of the probabilistic reasoning of the British author Graham Greene. His autobiography describes his experiences of playing Russian roulette as a depressed undergraduate in the 1920s. His novel "Dr. Fischer of Geneva or the Bomb Party" describes how very rich people are invited to take a cracker from a barrel. There are 6 crackers; five have huge cheques in, one has a bomb. These writings reveal evidence of interesting reasoning fallacies.

"Judgmental Forecasting of a Cyclical Time Series," Kevin Biolsi, University of Michigan & Paul C. Price, University of Michigan.

Learning to predict a criterion based on previous values of that criterion is important for effective forecasting. Our subjects predicted numerical values in a time series that followed a randomly perturbed sine wave pattern. They predicted 100 values in the series with outcome feedback provided, followed by 70 values with no feedback provided. Although subjects clearly learned about and made use of the underlying cyclical pattern, this information received relatively little weight when outcome feedback was available.

"Evidence of Judgment Bias: The Market for Baseball's Free Agents," Barry Blecherman, Wharton School of Business.

Economists often dispute the importance of judgment bias experiments and questionnaires by pointing out that natural settings have larger incentives for correct behavior and that these biases have not been discovered in the decisions of business executives. This investigation explores one kind of naturally occurring data -- the salaries of baseball's free agents -- for the existence of the winner's curse and is suggestive of an availability bias.

"Will Anyone Decide? Effects of Shyness on Decision-Making," S. Bradshaw, Virginia Commonwealth University, D. Alexander-Fortif, Virginia Commonwealth University.

Shy individuals affect decisions made by groups. Historically traits related to sociability and comfort in the group have been found to influence an individual's impact on group performance. Our study of problem-solving groups finds shy individuals less satisfied with their performance ($p < .002$), the group's performance ($p < .05$), and reporting more evaluation apprehension than

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non-shy subjects ($p < .001$). Non-shy subjects' satisfaction with the group's performance was affected by the presence of a shy subject ($p < .02$).

"Predicting the Next President: Factors Affecting Accuracy and Confidence," Timothy Buckley, University of Illinois, R. John Turner, University of Illinois, & Janet A. Sniezek, University of Illinois.

Three groups (paid political consultants, political science students, and an accidental sample) made multiple predictions concerning the 1992 U.S. Presidential campaign. Effects of level of expertise, time horizon (i.e., proximity to the event), outcome desirability, and perceived environmental uncertainty on forecast accuracy and confidence are considered. Additionally, individual attained accuracy levels are compared to predicted accuracy levels. A theoretical framework for interpreting the results is proposed.

"Studying Judgments Made in the Grazing Management of Australian Rangelands," Donald G. Burnside, Western Australia.

Human judgment must apply scientific knowledge in making specific decisions about the grazing use of uncertain rangeland environments. However, there has been little formal research into the nature of individual judgment behavior.

Judgment analysis is being used to study three key decisions required in rangeland management. These are: the assessment of vegetation condition; the judgment of short term grazing use; and the judgment of long term change in the condition of the soils and vegetation.

"Abstract Thinking and the Hindsight Effect," Stephen A. Butler, University of Oklahoma & Dipankar Ghosh, University of Oklahoma.

The hindsight effect has been found to be rather robust, and much of the research has attempted to aid in reducing the effect. This paper hypothesizes that hindsight is a function of one's ability to think in an abstract manner. That is, hindsight bias is reduced if a person can recreate the judgment process. We measure abstract thinking with three separate tests: the embedded figures test, tolerance for ambiguity, and the alternate uses test. All three tests indicated that the ability to think in an abstract manner reduced the hindsight effect.

"Funding Opportunities at the National Science Foundation," N. John Castellan, Jr., National Science Foundation.

This presentation will provide information on research funding opportunities at the National Science Foundation. Special emphasis will be on the Decision, Risk, and Management Science Program, but information on other programs will be available.

"Electronic Group Brainstorming: Effects of Latency, Familiarity and Similarity," Terry Connolly, University of Arizona, Suzanne P. Weisband, University of Arizona, Sherri Schmedier, University of Arizona, & Rob Routhieux, University of Arizona.

Brainstorming groups reliably perform less well than do similar numbers of individuals working alone and later pooling their ideas. We have recently demonstrated a reversal of this pattern for large, computer-interactive groups. The present study probes the mechanisms underlying this reversal. We examine the effects on ideation of streams of stimulus ideas that are (a) rare or common; (b) normally generated early or late; and (c) on similar or dissimilar branches of similarity trees.

"The Influence of Judge-Adviser Consensus on Judge's Information Processing," Russell S. Cooper, University of Illinois & Janet A. Sniezek, University of Illinois.

This study expands work done previously (Cooper and Sniezek, 1990) on consensus in the Judge-Adviser System. The degree to which the judge and each adviser agreed was used to predict the influence each adviser had on the judge's subsequent decision and decision process. Five weighting functions describing advisers' influence were tested using a least-squared errors approach. The results indicate that there may be contingent usage of the different weighting schemes depending on judge-adviser consensus.

"Contingent Effects of Response Representation and Number of Response Alternatives on Audit Risk Judgment," William N. Dilla, University of Illinois & Dan N. Stone, University of Illinois.

Decision makers expect more response alternatives from numeric than linguistic response scales. We therefore hypothesize that continuous numeric and discrete linguistic response scales should increase the quality of audit risk judgments relative to discrete numeric and continuous linguistic response scales. Results of an experiment in which participants judged the riskiness of audit clients support and hypothesis. The lack of effects due to response representation in previous research may therefore result from a failure to control for both judgment representations and number of response alternatives.

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"The Effects of Decision Frame on Equity Considerations," Carsten de Dreu, University of Groningen, Joselito C. Lualhati, University of Illinois-Champaign-Urbana, & Christopher McCusker, University of Illinois-Champaign-Urbana.

One's subjective utility for a social decision making outcome, $U(X)$, can be described as a function of the utilities associated with one's own outcome, $U(\text{self})$, and that associated with the difference between one's own and the other's outcomes, $U(\text{self-other})$. In this paper, we hypothesized and indeed observed that in case of gains, $U(X)$ is better predicted by $U(\text{self-other})$ than by $U(\text{self})$. The opposite was expected and was found in case of a loss frame. Results are discussed in terms of Prospect theory and equity theory.

"Signal Detection Theory and the Value of Forecasts," Michael L. DeKay, University of Colorado.

Studies of forecast accuracy/forecast value relationships have traditionally used accuracy detection incompatible with empirical ROC curves. In this research, previous findings are confirmed and re-expressed using signal detection parameters. Forecasts are of no value if and only if the user's optimal likelihood ratio is greater than a maximum (if $\sigma_s < \sigma_n$) or less than a minimum (if $\sigma_s > \sigma_n$). All forecasts have value to users whose optimal likelihood ratio = 1. All forecasts have value to all users if $\sigma_s = \sigma_n$. Finally, increases in accuracy may lead to decreases in value.

"Managerial Planning: Renewable Resources versus Hedonic Editing," Laura DeRigne, University of Missouri-St. Louis & Paul Paese, University of Missouri-St. Louis.

This research explored the relative applicability of Linville and Fischer's (1991) Renewable Resources model and Thaler and Johnson's (1990) Hedonic Editing hypothesis to the planning of managerial tasks. Undergraduate students role-played the part of a manager in midst of planning daily activities. In the first study, subjects indicated their preferences for planning various tasks either on the same or on separate days of the week. In the second study, subjects were given the opportunity to exhibit preferences in a less restrictive planning task. If hedonic editing is operating, subjects should prefer to plan negative tasks on the same day in order to minimize the total negative value perceived in performing the tasks. Alternatively, if the Renewable Resources model is operating, subjects should prefer to plan negative tasks on separate days of the week in order to avoid being overwhelmed. It was hypothesized that the Hedonic Editing model would be more descriptive of the planning process. Only very weak support was found for this hypotheses in the realm of negative-negative task pairs. Further, it was found that subjects preferred to integrate positive-positive task pairs. This is contrary to the predictions of both the Renewable Resources model and the Hedonic Editing hypothesis. Implications are presented for more fully describing managerial planning processes.

"Perceived Risk and Betting Behavior: The Influence of Positive Affect," Jessica Dulin, Ohio State University & Thomas E. Nygren, Ohio State University.

In previous studies of risky decision making, inducing positive affect has been shown to create conservative betting behavior. This study used a horse racing task to look at gambling behavior. Affect and control subjects were asked to give subjective probability estimates, perceived riskiness ratings, and dollar bets for 8 horse race scenarios. The goal of this study was to determine which component(s) of the decision making process leads to the conservative behavior shown by affect subjects.

"Evidence Evaluation and Planning Heuristics in a Molecular Biology Laboratory," Kevin Dunbar, McGill University.

The cognitive processes underlying evidence evaluation and planning of experiments were examined in a leading molecular biology laboratory. Meetings, interviews and planning sessions were taped and analyzed. Analysis reveals that the social context of the research produces significant changes in the representation of the problem and modulation of individual reasoning biases. The mechanism of change is a cycle of questioning, elaboration, and offering of alternative interpretations that highlight experimental features and determine the experiments conducted.

"Relevant Dimensional Information Facilitates the Utilization of Configural Information II," Stephen E. Edgell, University of Louisville.

Two previously presented experiments, using the paradigm of nomic cue probability learning, found greater utilization for configural information when the relevant pattern contained a multiple dimension than when the relevant dimension was outside the pattern. It was found, in two new experiments, that two relevant dimensions contained in the relevant pattern could be even more facilitating to the utilization of the pattern than only one relevant dimension.

"The Impact of Self-efficacy on Calibration and Overconfidence," Teri Elkins, University of Houston.

Lichtenstein, Fischhoff, and Phillips (1977) concluded that calibration is not strongly related to global trait measures. Because calibration is task-specific and its relationship with task-specific traits has not been studied, self-efficacy (Bandura, 1982) was

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hypothesized to relate directly to calibration and overconfidence. Undergraduate students ($N=53$) estimated the probabilities of having correctly answered exam questions. Academic self-efficacy and calibration were positively correlated (0.33250 , $p < .05$). No relationship was found between self-efficacy and overconfidence. Results are discussed in terms of training individuals to be better calibrated through techniques for increasing self-efficacy.

"Simultaneous Overconfidence and Conservatism in Judgment: Implications for Research and Practice," Ido Erev, The Technion: Israel Institute of Technology, Thomas S. Wallsten, University of North Carolina at Chapel Hill, & David V. Budescu, University of Haifa.

Two empirical judgment phenomena appear to contradict each other. One body of literature has analyzed subjective probability (SP) judgments as a function of objective probability (OP) and generally found judgment to be conservative. Another has analyzed OP (operationalized as relative frequency correct) as a function of SP and generally found overconfidence. We show that both results can be obtained from the same set of data, depending on the method of analysis. This goal is accomplished first by reanalyzing 3 studies and then by generating the simultaneous effects by means of 2 families of models. The 2 sets of models agree that subjective probability estimates arise from true judgments, t , plus random error, e , but differ in how t and e combine to yield a response. The implications of this work are that (1) judgment or response error cannot be ignored, (2) care must be taken in eliciting whether to use OP or SP as the dependent variable in an analysis, and (3) the correct dependent variable is different for practical decision analysis than for basic research on judgment. Useful theoretical questions concern how overt estimates depend on t and e , the factors that cause t to be more or less extreme than warranted by the available information and the factors that affect e .

"Anticipations of Effort and Accuracy in Multiattribute Choice," M.G. Fennema, University of Illinois & Don N. Kleinmuntz, University of Illinois.

This paper proposes a study of decision makers' ability to anticipate the effort and accuracy consequences of their decision strategies in multiattribute choice. Previous studies have examined experience effort and accuracy associated with various strategies. However, if strategies are selected early in the decision process, strategy selection will be a function of anticipated effort and accuracy.

"A Comparison of College Students' Consultants Across Types of Decisions," Laura L. Finken, University of Nebraska-Lincoln.

Differences among four types of decisions (abortion, medical, career, and social) were investigated by presenting vignettes to 236 college students. Subjects listed whom they would consult among family, friends, and professionals. Preliminary analysis found the decision which elicited the most consultants was medical, then career, abortion, and finally social ($F=281.30$, $p < .001$). A significant three-way interaction between type of decision, career of consultant, and gender was found ($F=2.20$, $p < .05$). Future analyses will examine the order of consultants and their ranked importance.

"How Consumers Integrate Good and Bad Product Experiences," Gary J. Gaeth, University of Iowa, Irwin P. Levin, University of Iowa, Jennifer Castellucci, University of Iowa, & Tonya Sieverding, University of Iowa.

A procedure was developed for manipulating instructions in the use of an electronic typewriter that would lead to either a success or a failure experience. We examined how evaluations of the word processor were affected by the sequence of successful and unsuccessful experiences and by subjects' attributions of the source of their performance.

"Family Decision-Making: Processes and Outcomes," A.K. Ganzel, University of Nebraska, Janis E. Jacobs & University of Nebraska.

Conversations of 32 two-parent and 21 single-parent families, with either preadolescent or adolescent children, were coded for agreements, statements, questions and disagreements as they completed a decision task. Profile analyses revealed parent-to-child ratios for each category (decision process) were not highly related to decision outcome; however, in single-parent families, higher child disagreement predicted child's choice; in two-parent families, higher child disagreement predicted parent(s) choice. Mothers used more questions with preadolescents than adolescents.

"The Influence of Psycho-social Factors Upon the Heart Transplantation Eligibility Process," Stacie Geller, University of Arizona & Terry Connolly, University of Arizona.

Many heart transplant programs consider psycho-social criteria in deciding whether to accept a patient for transplant surgery. Medical criteria, which are often used to eliminate applicants for heart transplants, have been systematically examined. However, the influence of psycho-social factors is just beginning to be the topic of critical and empirical evaluation. Unlike medical criteria, psycho-social selection criteria have been used as general guidelines as opposed to somewhat more rigid rules. Therefore, the decision maker appears to follow a more "intuitive" judgment rule rather than a more normative standard. This

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study examined how individual members of a cardiac transplant team think about these decisions. This research utilized policy capturing as a way to understand clinicians' decision-making in the transplant eligibility process, specifically regarding the influence of psycho-social factors.

"The Influence of Confucian Values on Decision Making," Gretchen Gmeinhardt, University of Houston.

The decision making field is dominated by the Western view of a central, independent individual. This perspective does not adequately describe the decision making behavior of individuals influenced by Confucian values. To Confucian individuals, decisions are embedded in a social context. The individual is not as important to the decision process as the maintenance of harmonious relationships. Rational adaptations to decision theory are proposed that consider the effect of relationship maintenance on information use, decision framing, and outcome.

"Intolerance for Ambiguity, Risk Preference and Negotiator Effectiveness," Dipankar Ghosh, University of Oklahoma.

This research examines the effect of risk preference and intolerance for ambiguity on negotiator effectiveness. The results indicate that effectiveness increases with the increase in the negotiator's risk preference, though it was moderated by the risk preference of the negotiating partner. Further, when the negotiators in a dyad are matched by their risk preference, the negotiator with less intolerance for ambiguity achieves greater effectiveness; however, if their risk preferences are not matched, attitude towards ambiguity will accentuate the effect of risk but not nullify it. These results suggest that bargaining models need to include both risk and ambiguity to expand their descriptive power.

"Decision Processes Used by Performance Appraisers," Jacqueline A. Gilbert, University of Houston.

The purpose of this paper is to describe decision processes used by those conducting performance appraisals. Both traditional approaches to appraisal and more recent cognitive approaches, as well as alternative information processing models, are reviewed. Future research directions to improve the accuracy and generalizability of performance appraisals are discussed. Additionally, unexplored cross cultural areas for future performance appraisal research are examined in detail.

"Policy Capturing Decision on 'Promotability' of Applicants," Jacqueline A. Gilbert, University of Houston.

Policy capturing was used to assess which performance and personality dimensions are important in promotability assessment. Findings indicated that the cues of past performance reviews and job changes during the past ten years accounted for the majority of the variance, while two cues associated with Type A behavior, competitiveness and expectations, were not used. Implications for organizations, such as hiring trends and corporate loyalty, are discussed.

"Calibration Curves with Negative Slopes," Nigel Harvey, University College London & Richard Rawles, University College London.

Misleading questions in a quiz are those that are answered correctly at significantly below-chance levels. We show that the calibration curve for such questions has a strong negative slope not only when they are identified post-hoc (Experiment 1), but also when they are grouped together and answered by a new group of subjects (Experiment 2). We also report the effect of telling subjects whether questions have been misleading in previous studies (Experiment 3).

"Improving Group Judgment Accuracy," Rebecca A. Henry, Purdue University.

This study investigated the effectiveness of two different group interventions for improving group judgment accuracy. Results indicate that group members were able to consistently identify the most accurate member even though the judgment task did not have a demonstrable solution. However, one of the interventions (that which required individuals to evaluate the relative quality of their own judgments) led to a lower incidence of selecting the most accurate individual judgment (compared to the control baseline).

"Performance Judgments: The Role of Ability and Effort Self-assessments," Rebecca A. Henry, Purdue University, & Oriel J. Strickland, Purdue University.

Task performance is generally assumed to be a function of ability, effort, and situational constraints. Individuals' judgments of future performance on a task should therefore be based on self-assessments of these three factors. The present study investigated whether these three judgments correspond with subsequent performance predictions. Results indicate that ability and effort judgments corresponded with performance predictions, but not actual performance, and that performance judgments were more accurate when greater external constraints were perceived.

(negative, zero, positive) between subjects. The decision strategy for evaluating alternatives with complete and incomplete information varied with the costs of the evaluation errors.

"Individual Differences in the Content and Accuracy of Interracial Stereotypes," Marsha James-Valutis, University of Missouri-St. Louis.

It is asserted that stereotypes pertaining to racial groups may possess some ecological validity when predicting group characteristics. However, the amount of accuracy (or inaccuracy) in judgments involving interracial stereotypes will vary from person to person, depending upon several individual difference variables. More specifically, it is proposed that the accuracy of any one perceiver's stereotypical judgments will depend upon his or her personality, racial attitudes, and prior experiences with group members. This research tests some specific hypotheses with regard to individual differences in stereotype content and accuracy.

"Using Titration to Estimate Crossover Points in Subjective Probability Functions," Richard Johnson, University of Alberta & Ujwal Kayande, University of Alberta.

The subjective probability functions postulated by Prospect Theory (Kahneman and Tversky, 1979) and Venture Theory (Einhorn and Hogarth, 1990) both imply that some probability value (p^*) exists at which decision makers switch from risk seeking to risk aversion. Titration results indicate that p^* does exist, that it depends on ambiguity, and that it is influenced by the amount of money to be won. The first result is consistent with both subjective expected utility models, the second is consistent with Venture Theory and inconsistent with Prospect Theory, and the third is inconsistent with both theories.

"Using outcome information to evaluate decision quality," Steven K. Jones University of Oregon & Deborah Frisch, University of Oregon.

The quality of decisions is often evaluated using a formal normative model, such as expected utility theory. Decision quality can also be evaluated by examining the outcome of a decision, although obviously, this information is not perfectly diagnostic. We present the results of a study in which people described the processes involved in real life decisions that led to either good or bad outcomes. We describe several differences in the processes involved in decisions with good versus bad outcomes.

"Preventing Overconfidence in Individual Decision Making with Devil's Advocacy," Cynthia A. Joyner, Ohio University.

Devil's Advocacy was used to reduce overconfidence in individual decision making. Subjects viewed a videotaped job interview, made individual predictions about the job candidate's behavior in job related situations, and assessed confidence in their predictions. Two experimental Devil's Advocate treatments were used, including Written Devil's Advocacy where subjects wrote reasons opposing their predictions, and Mental Devil's Advocacy where subjects thought about reasons opposing their predictions. Both experimental treatments significantly reduced overconfidence compared to control subjects.

"An Examination of Base Rate Information, Attributions, and Counterfactual Reasoning," Maryellen Kinnaly, University of Missouri-St. Louis & Glynnis E. Lane, University of Missouri-St. Louis.

Recent research in decision making has suggested that the relationship between precomputed representations (expectancies) and postcomputed representations (counterfactuals) be examined in greater detail (Miller, McFarland, & Turnbull, 1990). The present study investigated that relationship and found that 1) students did not take relevant base rate information into account when predicting their score on an upcoming exam, 2) the attributions students made for their exam performance conformed to the self-serving bias, and 3) students' attributions were consistent with their counterfactual statements.

"Gigerenzer vs. Kahneman and Tversky: A Reconciliation of the Two Perspectives," Maryellen Kinnaly, University of Missouri-St. Louis.

Gigerenzer (1991) argues that the "heuristics and biases" program of Kahneman, Tversky and others "must be abandoned if long-term progress is to be made . . . in the judgment and decision making field." Gigerenzer offers an alternative perspective which disputes much of the heuristics and biases research. The present research suggests that the two perspectives are not contradictory, but rather can and must be reconciled in order to make long-term progress in the judgment and decision making field.

"Generating Your Own Hypothesis Makes You Less Confident It's True," Derek Koehler, Stanford University.

In four experiments, subjects asked to generate their own hypotheses gave lower and better calibrated confidence judgments than did other subjects who were presented with the same hypotheses for evaluation, suggesting that hypothesis generation increases the salience of alternatives to the focal hypothesis. This interpretation is supported by experiments demonstrating that the

"Problem Space and Prospect Frame: Judgment in the Face of Opportunity vs. Threat," Scott Highhouse, Indiana University-Purdue University at Indianapolis & Paul W. Paese, University of Missouri-St. Louis.

This investigation considers the impact of alternative problems in framing research by crossing levels of the prospect construct with levels of the problem construct (i.e., threat vs. opportunity). Results of this investigation suggested that prospect theory can be expanded to account for judgment in the face of opportunities. However, evidence for a problem main effect suggested that the problem space adopted by decision makers may set limits on risk taking.

"The Generation of Correlated Cues for Probability Learning Tasks," James H. Hogge, Vanderbilt University & John Murrell, The University of Cambridge.

Experimental multiple cue probability learning tasks typically employ randomly-generated cues that are essentially uncorrelated. While this is convenient for subsequent analyses, participants in such studies tend to notice unrealistic combinations of cue values. This presentation will deal with a solution to this latter problem: an interactive computer program that generates integer cues approximating multivariate normality and user-specified intercorrelations. A preliminary evaluation of the adequacy of the correlation matrix approximation will be included.

"The Effects of Previous Experience on Subsequent Individual and Group Decision-Making," Andrea B. Hollingshead University of Illinois & Patrick R. Laughlin, University of Illinois.

This experiment examined the effects of previous group and individual decision-making experience on subsequent group and individual decision-making. Subjects were randomly assigned to one of eight possible conditions to work on three successive decision either individually or in a cooperative four-person group. The results indicated that previous individual or group experience had no effect on subsequent individual decision-making. However, previous group experience improved subsequent group decision-making.

"Child and Adolescent Decision Making about Solid-waste Recycling," David R. Holtgrave, University of Oklahoma Health Sciences Center, Barbara Tinsley, University of California at Riverside.

Young people can help solve current solid-waste management problems by making prudent consumer choices and recycling. We surveyed 1278 students (from the 5th, 6th, 10th and 11th grades in California and Oklahoma) to determine the most important factors in their decision-making about recycling (a multi-attribute utility theory). The six highest-rated decision-making factors are as follows: interest in the position of environmental groups, and concern about wildlife, natural resources, human health, the environment and the overflow of landfills. These results have informed recycling education curriculum development.

"The Effects of Perceptions of Risk on Adolescent Contraceptive Behavior," Janis E. Jacobs, University of Nebraska & Maria T. Potenza, University of Nebraska.

This study was designed to test the relationships between prior experience, perceptions of risk, and contraceptive behavior. Adolescent females between the ages of 15 and 19 (n=419) completed questionnaires concerning sexual experience, contraceptive practices, and perceptions of risk. Regression analyses reveal that the number of previous partners, the frequency of sex, previous pregnancies, the number of years of sexual activity, and the perceived likelihood of pregnancy are significantly and positively related to current use of contraception. In addition, adolescents who have taken greater contraceptive risks without becoming pregnant believe that the risk of pregnancy is low, and are less likely to use birth control than those who have less past experiences and those who have taken fewer contraceptive risks in the past.

"Do Children Use the Law of Large Numbers?" Janis E. Jacobs, University of Nebraska & Rodger Narloch, University of Nebraska.

Learning to generalize from instances is an important part of social judgment. This study examined developmental trends in elementary school children's use of sample size to make generalizations. First-, third-, and sixth-graders heard scenarios in which sample size was manipulated, then made generalizations about the population based on the sample described in the scenario. A developmental trend for the use of sample size was found. Younger children were less likely to use increasing sample size as a cue to greater generalizability than were older children.

"Situational Factors Influencing the Evaluation of Alternatives with Missing Information," Carolyn M. Jagacinski, Purdue University.

Two experiments were conducted which altered the costs of evaluation errors of overprediction and underprediction. Experiment 1 involved a hiring decision with the cost of overprediction greater. Experiment 2 involved a decision to give medication with underprediction being more costly. Evaluations were based on two pieces of information. The correlation between them varied

effect is eliminated if a set of alternatives is specified or if a delay is inserted between hypothesis generation and confidence assessment.

"An Etic-Emic Perspective on Cross-Cultural Decision-Making (CCDM) Research," Sanjiv Kumar, University of Houston, David M. Nicol, University of Houston, & Dale E. Rude, University of Houston.

A review of fifteen management and psychology journals for the period 1982-1991 found that only twenty-nine articles (0.4% of all articles; 7.3% of decision-making articles) addressed behavioral decision making across cultures. U.S.-based decision theory is often applied universally without consideration of possible cultural influence on decision making. Berry's (1989) five-stage model for cross-cultural research is used to assess trends within CCDM research, and to propose future directions for the conduct of cross-cultural research.

"Impact of Decision Environment and Task Upon Analysis and Intuition," Margaret R. Langford, University of Houston.

In this experiment, Hammond's (1988) task and cognitive continua were integrated with Breach and Mitchell's (1978) decision contingency model. Results support Hammond's cognitive continuum and suggest that decision environment was more instrumental than decision task in inducing a corresponding response along the continuum. Results also indicate that a single continuum combining characteristics of both environment and task exists, inducing a corresponding cognitive response. Individual preferences for information and ways of thinking were also explored.

"Reflecting on the Reflection Effect: Disrupting the Effects of Framing through Thought," Richard P. Larrick, Northwestern University, Edward E. Smith, University of Michigan, & J. Frank Yates, University of Michigan.

Prospect Theory (Kahneman & Tversky, 1979) proposes several cognitive processes that lead people to be risk averse when they are making choices about gains and to be risk seeking when they are making choices about losses. For example, most people prefer option S when the Disease question is framed as a choice between gains (saving lives) but prefer option R when the question is framed as a choice between losses (losing lives). This tendency to reverse risk preference is known as the "reflection" effect; it can lead to different preferences even when objectively identical outcomes are framed in different ways. Recently, several lines of work have shown that reflecting on preferences (Wilson et al., 1989) and justifying decisions to an audience (Simonson, 1989; Miller & Fagley, 1991) lead people to make different decisions than they would otherwise. In the following two studies, we hypothesized that the "reflection" effect would be disrupted when subjects engaged in various forms of reflective thought, such as thinking aloud about their decisions, justifying their decisions, and weighing the pros and cons of their decisions.

"Similarity Judgments and Violations of the Expected Utility Hypothesis," Jonathan W. Leland, Carnegie Mellon University.

Rubinstein (1988) proposed that common ratio violations of the independence axiom occur as a consequence of choice between risky alternatives being based in part upon the extent to which prizes and probabilities across alternatives appear "similar" in value. This paper further explores the consequences of such judgments. A three-stage judgment procedure along the lines of Rubinstein's is proposed. This procedure is shown to imply systematic violations of equivalence, stochastic dominance, and transitivity of the types predicted by Loomes and Sugden's (1982) Regret Theory. Similarity judgments also imply conditions under which intransitivities may occur and types of intransitive choice which are inconsistent with Regret Theory. Somewhat stronger assumptions regarding the characteristics of similarity judgments are shown to imply that individuals will also exhibit common ratio violations of the independence axiom as well as systematic preference reversals between different two-stage representations of the identical single stage lotteries in violation of invariance. By modifying the assumed judgment procedure to apply to choices between simple lotteries and outcomes to be received with certainty, conditions under which individuals will exhibit four-fold risk preferences (risk averse (seeking) for gains (losses) at high probability and risk seeking (averse) for gains (losses) at low probability) are derived. New and previously published experimental results confirming each of these predictions are presented. The implications of these findings regarding the appropriate way to understand and model choice under uncertainty are then discussed.

"A Range-Frequency Explanation of Risky Decision Making," Rodney G. Lim, Tulane University.

An integration of range-frequency theory and prospect theory is proposed. Prospect theory assumes the riskiness of one's decisions depends in part on one's reference point, which represents an adaptation level. Range-frequency theory is believed to provide a better representation of the reference point and, thus, explain more accurately the judgment of outcomes as gains or losses and the riskiness of subsequent decision-making. Results of a computer-based decision task supported hypotheses concerning range and frequency effects on the reference point and judgment. Effects on choice, however, were supported under gains but not losses.

"Effects of Social Influence on Grain-Producers' Selling Decisions," Bonnie Lindemann, University of Iowa.

Grain-producers make risky choices deciding when to sell grain in volatile markets. This study surveyed Iowa farming couples using direct questions and systematically-varied vignettes to determine how social influence and social comparisons affect grain-selling decisions. Findings suggest gender differences in risk-taking attitudes and in risk perceptions. Both regret and elation were influenced by the outcomes of other grain-producers. Contrary to earlier findings, regret was greater for outcomes resulting from inaction than from action taken.

"The Attributional Processes of Experts and Novices as an Explanation for Overconfidence," Javashree Mahajan University of Arizona & Dipankar Chakravarti, University of Arizona.

This research compares the effects of evaluative and outcome feedback on the confidence and accuracy of experts and novices. The underlying attributional process is examined and provided as an explanation for overconfidence. These effects are explored in two experiments that deal with forecasting and strategic planning. The results suggest that the attributions of experts and novices differ for negative and outcome feedback but not for positive feedback. Similarly, the accuracy and confidence of experts varies depending on the type of feedback provided, while the performance of novices remains largely unaffected.

"Calibration of Probabilities in a Perceptual Discrimination Task," Alastair McClelland, University College London & Ferguson Bolger, University College London.

A key finding in probability-judgment research is that calibration varies systematically as a function of task difficulty. Ferrell and McGee (1980) attributed this to subjects' insensitivity to changes in the discriminability of items (Detection Model). Both Gigerenzer, Hoffrage and Kleinbolting (1991) and Juslin (in press) claimed it is due to biased item selection (ecological Model). Our findings from a perceptual rather than almanac task with random item selection, clearly support the Detection but not the Ecological Model.

"Social Values and Allocation Choice Times: An Information Processing Approach," Charles G. McClintock, University of California-Santa Barbara & Michael Platow, Otago University, New Zealand.

This research continues our study of the cognitive processes underlying self/other allocation decisions. Consistently observed value effects upon decision times are evaluated as a function of: (1) the complexity of the numerical operations required to make allocations consistent with particular social values; and (2) the differential attractiveness or aversiveness of value related self/other outcome combinations. The findings of three studies indicate that attractiveness/aversiveness has a greater effect.

"Contextually Induced Decision Shifts in Explanation-Based Decision Making," Paula J. Messamer, University of Colorado & Nancy Pennington, University of Colorado.

This research investigated the effects of choice-set manipulations on explanation-based decisions in legal and business domains. Decision shifts analogous to contextually-induced preference reversals were found. A moderately attractive decision alternative was chosen more often when a weak alternative was added to the choice set than when the weak alternative was not part of the choice set. Results support the idea that the attractiveness of an alternative is enhanced globally when it dominates another alternative.

"Framing Effects and Arenas of Choice: Your Money or Your Life?" Paul M. Miller, New Century Education & Nancy S. Fagley, Rutgers University.

The effects of framing, arena of outcome (human life vs. money), and sex of subject on risky choice were examined in a sample of 269 undergraduates. The effects of framing differed for males and females. Women showed the classic framing effect, making more risky choices when outcomes were framed negatively than when framed positively (although the magnitude of this effect was about half of that reported by Tversky and Kahneman, 1981). Men, however, failed to show a framing effect. They made about the same number of risky choices regardless of framing. Both males and females made more risky choices in the arena of human life than in the monetary arena.

"The Role of Psychorhetorical Rules in the Conjunction Fallacy," Giuseppe Mosconi, University of Milano & Laura Macchi, University of Milano.

We studied the conjunction fallacy (Tversky and Kahneman, 1983), considering the role of some basic rules of natural language (Grice, 1975; Sperber and Wilson, 1989). We hypothesized that a "tautological" question, which concerns the comparison between the part (the conjunction) and the whole, goes against these rules. It can be proposed in particular contexts (i.e., argumentative ones: philosophical or juridical disputations). The conjunction fallacy was eliminated when the question about the evaluation of a conjunction was inserted in a "philosophical dispute."

9

"How does Positive Mood Alter Risky Decision Making Behavior?" Thomas E. Nygren, Ohio State University, Pamela J. Taylor, Ohio State University, & Jessica Dulin, Ohio State University.

A study was conducted in which positive affect and control subjects made bets and judgments of risk, attractiveness, and confidence for three-outcome gambles with vague verbal probabilities. Results indicated that the conservative betting behavior typically found for positive affect individuals is not a function of perceived risk, but rather is related to a greater sensitivity to avoiding losses. Affect subjects bet less in high potential loss gambles but bet more in low loss gambles.

"Effects of Learning Strategy on Gambling Choice Behavior: Simulation Study," Jae Myung, Ohio State University.

The purpose of this study was to demonstrate important role of dynamic learning processes in decision making under uncertainty. Computer simulations of a gambling decision task with probabilistic feedback, in which outcome probability was presented experientially rather than numerically, were conducted. The results showed that qualitatively different choice behavior can be resulted depending upon learning strategy and memory size as well as feedback schedule.

"Income Source Effects and Mental Budgeting," Suzanne O'Curry, DePaul University

Price decreases and gains of money both yield real income to consumers. If price ratios are unaffected, the only difference in spending patterns between a price decrease and a gain of money should be an increase in quantity purchased when prices fall. An experiment demonstrates that patterns of spending identical amounts of real income differ in ways not predicted by economic theory, depending on the income source. An explanation based on mental accounting is offered.

"Using Confidence for Action: An Investigation of Four Assumptions," Michael J. Olson, University of Illinois at Urbana-Champaign & Janet A. Sniezek, University of Illinois at Urbana-Champaign.

Subjects answered general-knowledge questions and reported levels of confidence in the answers using numerical probabilities. Afterwards, they made subsequent decisions concerning their answers. For each item, subjects chose to try to gain a point (for a chance at a cash prize) by going with either a) their answer, or b) a gamble with a given probability of success. Within subjects, confidence was correlated with decisions. Extremely overconfident subjects went with their answer more often, and obtained lower scores. Interestingly, subjects did not always go with the more probable alternative. The results call into question typical interpretations and implications of overconfidence.

"Affect, Motivation, Personality and Cognition in Dynamic Decision Making," Mary M. Omodei, University of Melbourne, Alexander J. Wearing, University of Melbourne, Jane Gilbert, University of Melbourne, & Noel Oliver, University of Melbourne.

This investigation aims to describe the relationship between selected measures of personality, affect, cognition, motivation and performance in dynamic decision making. Using FIRECHIEF, a computer program which simulates the task facing a fire control officer responsible for dispatching appliances to fight bushfires, experiments are reported in which participants engaged in a series of trials, interleaved with questions about their affective and motivational states. The results indicate the importance of using 'longitudinal' as well as 'cross-sectional' designs.

"Information Management and Decision Strategies in High-Risk Environments," Judith Orasanu, NASA-Ames Research Center & Ute Fischer, NRC Associate, NASA-Ames Research Center.

In time-pressured, high-risk environments, people use their knowledge to make decisions that contribute to successful performance of on-going dynamic tasks. A preliminary taxonomy of the types of decisions that are encountered in one such environment (air transport flight decks) and their information processing demands will be described. We will also present data illustrating information management and decision making strategies evidenced by more and less successful crews as they coped with emergencies during full-fidelity simulated flights.

"Risk Perception: Theoretical Framework and Empirical Results," Christina Palmer, University of Wisconsin-Madison & Francois Sainfort, University of Wisconsin-Madison.

We expanded the theoretical framework for the study of risk perception to include judgments of four hypothesized dimensions of risk: uncertainty, adversity, incompleteness, and ambiguity. These dimensions are evaluated for each event in an event structure which represents events emanating from a primary event of interest. A questionnaire was developed to capture those dimensions and administered to subjects who have a chance to have a child with a genetic dwarfing condition. Preliminary data are presented.

10

"Risk Communication: Relative Risk vs. Probability Displays," Andrew M. Parker, University of Michigan, Eric R. Stone, University of Michigan, & J. Frank Yates, University of Michigan.

Previous research demonstrated that professed preventive behavior was affected more by information presented in relative risk form as opposed to probabilistic form for risks concerning tire blowouts but not for risks concerning periodontal disease. Two hypotheses were proposed to explain these apparently contradictory findings: 1) subjects given extremely low probabilities, such as those associated with tire blowouts, "edit" them to essentially zero, and 2) subjects given relative risk information overestimate highly publicized risks, such as those associated with automobile accidents. Comparisons involving scenarios with high and low risk levels, as well as high and low media exposure, largely supported the first hypothesis.

"Predicting Patterns of Confidence: An Application of Information Discounting Theory," Michael E. Persinger, University of Illinois.

This study proposed an information discounting theory designed to predict changes in judgmental confidence in complex decision problems. Seventy-five subjects estimated solutions to an induction problem under different conditions of information consistency and reliability. As hypothesized, people recognize differing reliabilities, yet act as if information was perfectly reliable. When information is inconsistent, unreliable information is discounted which results in confidence increases. Reliable information forces reconciliation of this inconsistency which results in confidence decreases.

"Extending Choice to Control Theory: The Role of Commitment," Michael E. Persinger, University of Illinois & Janet A. Sniezek, University of Illinois.

This study investigated choice of cognitive versus behavioral discrepancy reduction strategies in a control theory framework. Seventy-four subjects made performance judgments, set goals, and solved anagrams test for two sessions. In support of a general commitment model, judgments showed more changes and were more predictable from prior discrepancy than were goals. In addition, confidence in the judgments also moderated choice so that judgments changed most when high discrepancy was combined with low confidence.

"Outcomes Bias: The Effect of a Priori 'Obvious' Decisions," Mark V. Pezzo, Ohio University.

Business decisions with negative outcomes were evaluated more harshly than identical decisions with positive or no outcomes. This effect occurred even with decisions judged to be obviously good or poor by pilot subjects. A recall measure supported Fischhoff's (1975) creeping determinism explanation, but not the outcome-expectancy extension proposed by Schkade and Kilbourne (1991). Interestingly, outcome knowledge did not produce "hindsightful" outcome likelihood judgments, although these judgments were strongly correlated with decision evaluation measures. Implications are discussed.

"Metaknowledge of Decision Processes in Young and Old Adults," Rebecca M. Pilske, Marymount University & Sharon A. Mutter, Western Kentucky University.

The relationship between metamemory and memory task performance has previously been established (e.g., Hertzog, Dixon, & Hultsch, *Psychology & Aging*, 1990). Our poster describes the development of a decision making questionnaire that assesses metaknowledge of decision processes. Responses from 50 older (age 60-85) and 50 younger (age 18-25) adults suggest there are reliable differences between age groups on scales such as information needs and decision avoidance. Future research will examine the relationship between metacognitive processes and performance on various judgment tasks.

"Sports Forecasting: Preferences & Accuracy for Hockey," Evan Thackeray Pritchard, University of Illinois at Urbana-Champaign.

National hockey team performance estimates with 90% confidence intervals, as well as liking and familiarity judgments for each National Hockey League team prior to the 1991-2 season. As hypothesized, familiarity was negatively related to confidence interval size ($r = -.31, p < .001$). Surprisingly, liking for a team was unrelated to the team performance estimates. However, subjects' team performance estimates were highly correlated with actual team performance ($r = .56$), although subjects were overconfident ($p < .001$).

"Designing Decision Aiding Software," Daniel J. Power, University of Northern Iowa.

Computerized decision aids often have very different user interfaces. This paper reviews the designs of eight major software packages and discusses the relative advantages and disadvantages of the respective user interfaces. The key design issues of aesthetics and functionality are reviewed. More specific design issues related to simplification of underlying models, field order, wording of stimuli, eliciting values, field length, and visual displays are also considered. The paper concludes with suggestions to improve the user interfaces of computerized decision aids.

"Ambiguity, precision, and Choice: A Fuzzy-Trace Theory Analysis," Valerie F. Reyna, University of Arizona & John V. Fulginiti, University of Arizona.

Recent research has shown that deleting quantitative information increases framing effects. An important criticism of this result is that it may be due to ambiguity. Here, we ruled out this interpretation by varying exposure to deleted information. As ambiguity was reduced, responses to vague or partial problems did not change. When decisions specified relevant quantities only, however, choices did change contrary to psychophysical theories of choice.

11

"Cognitive Control of Army Officers," Jeff Schwartz, Automation Research Systems.

The Army Research Institute for the Behavioral Sciences has been conducting a longitudinal study of U.S. Army officers. Special interest has resolved around officers' intent to staying or leave the Army. Since so much emphasis has been placed on environmental (e.g., economy, Army conditions, etc.) determinants of the intent, it is important to know how well officers perceive their environment. An assessment of officer "cognitive control" was therefore produced.

"Status Quo, Omission, and Comparisons in Employee Benefits Selection," Maurice Schweitzer, University of Pennsylvania.

Many employees now offer flexible benefits programs which allow employees to construct individual packages of benefits. Typically, these benefits decisions may be revised once a year. Despite the large stakes involved, few employees make changes in any given year. Several biases may operate to lead employees to make suboptimal choices. We investigate these biases in both hypothetical and actual decisions. We describe econometric analysis of both a mailed questionnaire and empirical data of benefits decisions.

"Causal Inferences based on contingency information," Ching-Fan Sheu, Carnegie Mellon University & John R. Anderson, Carnegie Mellon University.

We performed an experiment in which subjects made inferential judgments based on contingency information about a cause and an outcome. Subjects' judgments were little influenced by sample size manipulation and the rate of updating decreased as information accumulated. These findings contradict predictions of linear models based on event frequencies. A model employing odds-ratio with Bayes' updating procedure is proposed. It successfully accounts for the results of this experiment and three other existing data sets.

"Choice vs. No-Choice Effects on Probability Judgment Accuracy," Karen Siegel-Jacobs, University of Michigan & J. Frank Yates, University of Michigan.

A no-choice probability judgment format requires the judge to state a 0% - 100% probability for a designated target event (e.g., A = patient has pneumonia). In a choice format, the judge first chooses which is more likely (A or not-A), then reports a 50% - 100% probability that the selection was correct. Previous work suggests that choice formats produce less overconfident judgments. The reported study tested explanations based on subjects' beliefs concerning target preselection and domain-related differences in such effects.

"Spontaneous vs. Formal Judgments of Cause of Death," Albert F. Smith, State University of New York, David J. Mingay, National Opinion Research Center, Jared B. Jobe, National Center for Health Statistics, & James A. Weed, National Center for Health Statistics.

Physicians make judgments about cause of death. Formally, cause of death is "a sequence of conditions that originates in an underlying cause and culminates in an immediate cause, and contributing condition unrelated to this sequence." Physician respondents described the causes of recent deaths: Responses were not structured according to the formal concept and corresponded poorly to entries written in a death certificate. Physicians' spontaneous descriptions appear to be inconsistent with the death certificate's formal requirements.

"Rule are Better than Reasoning for Managing Risk," Kip Smith, University of Minnesota.

Organizations rely on experienced agents to manage risks associated with doing business. This poster compares alternative methods for decision making to support risk management in dynamic environments. The domain of investigation is Foreign Exchange (currency) trading.

A linear model is shown to outperform the reasoned strategies of experienced traders. This result extends Dawe's account of the robust beauty of rule-based decision making to highly adapted agents and risks measured in the millions of dollars.

"Cues to Order Radiographic Studies in Pylonephritis," Wally R. Smith, Medical College of Virginia, Donna K. McClish, Medical College of Virginia, Stephen T. Miller, University of Tennessee-Memphis & Loretta Bobo, University of Tennessee, Memphis.

Based on a chart review of 85 women, we found that older age, history of a previous UTI, history of previous pyelonephritis, and higher peripheral white blood counts cued MD's to order radiographic tests. In contrast, Caucasian race and higher premature white cell count predicted radiographic abnormalities. With limitations, we conclude there may be early predictors of radiographic abnormalities in women with pyelonephritis, but MD's use cues other than these predictors to order radiographic tests.

"An Assessment of the Relationship Between 'Deciding' and 'Doing,'" Janet A. Sniezek, University of Illinois, Josellito C. Lualhati, University of Illinois, & Russell Cooper, University of Illinois.

Current decision theoretic approaches to the study of behaviors in organizations assume that the concepts of "deciding" and "doing" are substitutable. This "equivalency" position has led to the neglect of topics such as the mutual causal influences between choice and action. Three studies (two laboratory experiments using a resource allocation task and a risky choice task, and a field study using time as an independent variable) were performed to test this position. Results question the appropriateness of the equivalency position and its implications.

12

"Effects of cueing and time horizons on forecast confidence," Janet A. Sniezek, University of Illinois, R. John Turner, University of Illinois, & Timothy Buckley, University of Illinois.

The effects of differing pre-task cueing conditions on individual confidence in forecasts were examined. Participants provided forecasts in the form of point estimates and confidence intervals for nonpersonal variables (e.g., annual U.S. AIDS deaths and U.S. crude oil prices). The effects of varying time horizons, manipulated as a within subjects factor, were examined by having the participants provide forecasts for each year of a ten-year period. Implications for the availability heuristic are discussed.

"Desire for Information: Influence on Decision Making in Patients," Theodore Speroff, Case Western Reserve University, Hal R. Arkes, Ohio University, Neal V. Dawson, Case Western Reserve University, & Alfred F. Connors, Jr., Case Western Reserve University.

1,746 seriously-ill patients responded to an eight-item desire for information scale at the eighth day of hospitalization. Patients who expressed ore desire for information had significantly greater satisfaction with their medical care greater patient-doctor concordance concerning the two-month prognosis but attributed less influence of the doctor's preferences toward their own care. Physicians also felt greater discomfort during discussions with such patients. In general, physicians felt that patients expressed their preferences, patients disagreed.

"Prognostic Model Versus Physician's Survival Estimates: Different Approaches, Similar Performance," Theodore Speroff, Case Western Reserve University, Hal R. Arkes, Ohio University, Neal V. Dawson, Case Western Reserve University, & Alfred F. Connors, Jr., Case Western Reserve University.

We compared the performance of physicians and a validated 4-strata proportional hazards model in predicting 2-month survival of 2,514 seriously ill patients. For 60% of the patients, the physicians were superior to the model (p=.001). However, compared to the physicians, the model placed fewer patients in the extreme categories of estimated probability of survival (<=0.05 or >=0.95). More frequent extreme errors by physicians gave the model very slightly superior discrimination, resolution, and probability scores.

"Expectations and Feedback in Multiattribute Choice," Dan N. Stone, University of Illinois.

How do expectations and feedback affect decision processes and performance? Undergraduates received feedback about either their decision processes or choice accuracy in a multiattribute choice task. Prior to the task, they stated expected accuracy and set performance goals. Participants who received feedback about decision processes set lower goals and made less accurate choices than those who received outcome feedback, but more accurately described their decision strategies. Participants who expected to perform well set higher goals exerted more effort, and made more accurate choices than those who expected to perform poorly. Results are explained within a cognitive cost-benefit framework.

"Providing Product Information to Consumers: Product Descriptions vs. 'Overall Scores'," Eric R. Stone, University of Michigan, Paul C. Pri e, University of Michigan, Kevin Biolsi, University of Michigan, & J. Frank Yates, University of Michigan.

To support more informed purchase decisions, many consumer publications present factual and evaluative descriptions of products along numerous important dimensions. In at least one prominent publication (Consumer Reports), these multiattribute product descriptions are often accompanied by an "overall score" for each product. What effect, beyond that of the descriptions themselves, do these overall scores have on people's ratings of product desirability? An experiment involving descriptions of 35 mm cameras revealed a substantial influence. Practical and theoretical implications are discussed.

"Expertise in Investment Analysis: Fact or Fiction?" Jim Sundali, University of Arizona & Allen B. Atkins, University of Arizona.

Past research, both theoretical and applied, has discounted individuals ability to accurately forecast security prices. Fama's (1970, 1976) theoretical work on capital market efficiency, and the empirical studies of Stael von Holstein (1972), and Yates, McDaniel, and Brown (1991), suggest that even "experts" can not perform any better than simple mechanical forecasting methods or the random throw of darts at the stock page. We provide evidence, garnered from a popular Wall Street Journal column, that security market "experts" do in fact outperform both market averages and randomly thrown darts. The results suggest: (1) the selection of subjects for security forecasting tasks is critical; and (2) there is merit in recent theoretical work on efficient market which takes into account the cost of information.

"Managerial and Consumer New Product Decisions: Choices Under Ambiguity," Kimberly A. Taylor, University of Pennsylvania.

Heath & Tversky (1991) posited that t is one's feeling of competence, and the accompanying attributions of credit and blame, which determine her attitude towards ambiguity. This paper directly tests the effects of attributions of credit and blame on the ambiguity attitudes of consumers and managers. The roles of the level of accountability for the decision, as well as the ambiguity source, are also explored in the decisions to purchase or launch a new product.

"The Effects of Feedback on Problem Solving from a Quantitative Perspective," Pamela J. Taylor, Ohio State University & In Jae Myung, Ohio State University.

The purpose of this study was to quantitatively examine how people learn to use feedback in developing a strategy for solving problems. Functions describing 1) the amount of memory and, 2) how much available information subjects were using, were compared to that of an ideal problem solver. Subjects who were allowed as much time as needed to make their decisions performed significantly better than subjects put under a time constraint.

"Use of Probabilistic Information by Mock Civil Juries," R. Scott Tindale, Loyola University, Joseph Filkins, Loyola University, Christine Smith, Loyola University, & Susan Sheffey, Loyola University.

This study assessed the degree to which a particular type of probabilistic or "proportional liability" information, called "Assigned Shares" (Lagakos & Mosteller, Risk Analysis, 6, 345-358) would affect mock jury decision making in a civil trial. Mock juries read a civil trial summary containing either high or low assigned share information, either associated or not associated with appropriate monetary awards. Results indicated that mock jury compensation judgments were influenced by the assigned share information only when appropriate monetary awards were also presented. Individual mock jurors were also significantly more likely to mention using the assigned share information to make their judgments when monetary values were included.

"Gist, Verbatim Memory and Suggestibility: Effects of Different Types of Misinformation," Allison L. Titcomb, University of Arizona & Valerie F. Reyna, University of Arizona.

Misinformation experiments typically focus on verbatim surface details of an event. Here, subjects read a story, were misinformed in one of three ways (altered detail, gist consistent, and gist inconsistent), and made recognition judgments (verbatim memory and "true according to the story"). Subjects in the altered detail condition were least likely to accept misinformation, but most likely to reject original items. Unlike prior work, we varied the event-misinformation interval and found greater suggestibility with greater delay. Results are discussed in relation to predictions from Fuzzy-Trace Theory.

"Intuitive Physics: An Idiographic Approach," Jeff W. Trailer, University of Houston.

This study examines the intuitive misconceptions that many people have about the motion of objects. Subjects were given repeated problems concerning trajectory physics. Policy capturing was used to identify each subject's judgment method. The results are discussed in terms of individual versus group achievement, cognitive control, knowledge and configurality. Graphs, Tables.

"A Direct Examination of the Value Function," Michael L. Trusty, University of Missouri-St. Louis.

A key characteristic of the value function in prospect theory is that an individual's reaction will be more extreme in response to a loss than to a gain. While this concept has received support in studies using discrete decisions, the shape of the function has not been examined. Thus, a study is proposed to determine the shape of the value function for both gains and losses using a continuous measure of value.

"Buying Vice and Virtue: Self-Control Mediates Purchase Quantity Decisions," Klaus Wertenbroch, University of Chicago & Chip Heath, University of Chicago.

Self-control has effects beyond the compelling but exotic ones (e.g., Christmas clubs) often discussed in the literature: it is ubiquitous in everyday purchase decisions. We show that people exert self-control by buying smaller package sizes of vices than of virtues despite incurring greater costs to do so (e.g., preferring packs over cartons of cigarettes but large over small Vitamin C containers). Evidence comes from questionnaires, field interviews, and a market price survey.

"Predicting Behavior With a New Idiosyncratic Approach to Belief Analysis," James D. Westaby, University of Illinois & Martin Fishbein, University of Illinois.

A new reason weight framework, that employs an idiosyncratic analysis of beliefs, is proposed and tested. This framework breaks from traditional expectancy-value models by a) conceptually differentiating reasons for vs. reasons against performing an act, b) using unique reason weight indices, and c) combining the indices in a differential belief analysis. Results from three experiments representing a diverse set of behaviors indicate that reasons weight is an efficacious predictor of choice intentions and behavior.

"Artificial Neural Networks for Knowledge Representation-A Simulation Study," Yuh-Cherng Wu, University of Wisconsin-Madison.

A new technique is developed to build decision models based on Bayes' theorem and conditional nonindependence by using artificial neural networks. A simulation study is conducted under various hypothetical conditions including the forms of likelihood functions, the numbers of variables, the numbers of patterns and the different conditional dependencies. The results from ANOVA support the artificial neural networks with appropriate design of configuration and selection of patterns which can approximate the Bayesian models under different conditional dependencies.

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Decision behavior is a major focus of research and training in several laboratories and programs throughout the University of Michigan. These activities are coordinated through the University's Decision Behavior Research Consortium. The Consortium welcomes applications for graduate study in the following programs that permit concentrations related to decision behavior: Business Administration (Computer and Information Systems, Marketing, Statistics and Management Science), Cognitive Psychology, Economics, Electrical Engineering and Computer Science, Industrial and Operations Engineering, Nursing, Philosophy, Political Science, Public Health, Public Policy Studies, and Social Psychology, Social Work. Faculty associated with the Consortium include:

- | | |
|---|--|
| Richard Andrews (Business School - Statistics and Management Science: Bayesian decision theory, assessment of prior distributions) | Penny Pierce (Nursing School: Clinical decision making in critical health care contexts) |
| Kenneth Binmore (Economics Department: Game theory, experimental economics) | Stephen Pollock (Industrial and Operations Engineering Department: Sequential decision analysis, detection of change) |
| Eugene Burnstein (Psychology Department: Group decision making, altruistic decision making) | Colleen Seifert (Psychology Department: Case-based reasoning, planning, real-world decision making) |
| Kan Chen (Electrical Engineering and Computer Science Department/Urban, Technological, and Environmental Planning Program: Decisions involving multiple parties, negotiation, social decision analysis) | George Siedel (Business School: Decision analysis, legal decision making) |
| Michael Cohen (Political Science Department/Institute for Public Policy Studies: Group problem-solving routines, computer modelling of subject behavior) | Edward E. Smith (Psychology Department: Cognitive approaches to judgment and choice, judgmental heuristics) |
| Fred Davis, Jr. (Business School - Computer and Information Systems: Computer-assisted decision making, user perceptions of decision support systems) | Joseph Swierzbinski (Economics Department/School of Natural Resources and the Environment: Experimental economics, game theory, choice under uncertainty) |
| Lee Green (Medical School - Family Practice/Public Health School: Physician decision making) | Robert Thomas (Business School: Negotiation, settlement behavior in litigation) |
| Larry Gruppen (Medical School - Postgraduate Medicine: Medical decision making, problem representation, expertise, decision support tools) | John Tropman (Social Work School/Business School: Policy and other decisions by boards of directors, decision rules and procedures) |
| Michael Johnson (Business School - Marketing: Customer satisfaction judgments, consumer choice, managerial decision making) | Steven Underwood (Electrical Engineering and Computer Science Department/Industrial and Operations Engineering Department: Competitive and collective decision making in the public sector, driver route choice) |
| James Joyce (Philosophy Department: Utility theory, game theory, representation of preferences) | Hal Varian (Economics Department: Models of optimizing behavior, analysis of economic institutions) |
| Michael Klinkman (Medical School - Family Practice: Clinical decision making, physician responses to uncertainty, referral decisions) | Chelsea C. White (Industrial and Operations Engineering Department: Multiattribute utility theory, Bayes's Rule with imprecise probabilities, computer-based decision aids) |
| Jeffrey Kottmann (Business School - Computer and Information Systems: Decision support technologies, performance beliefs about support technologies) | Fred Wolf (Medical School - Postgraduate Medicine: Mediators of heuristics and biases in clinical judgment, novice/expert differences, effects of computerized clinical decision support systems in medicine, medical informatics) |
| Peter Lenk (Business School - Statistics and Management Science: Subjective probability, risk) | James Woolliscroft (Medical School - Internal Medicine: Clinical decision making, expertise) |
| Melvin Manis (Psychology Department: Judgment, heuristics, stereotypes) | J. Frank Yates (Psychology Department: Basic judgment and decision processes, cross-national variation in judgment procedures, decision aiding, accuracy analysis, risk perception) |
| Richard Nisbett (Psychology Department: Subjective application of formal decision rules) | |

For information about the work of particular faculty members or about applying for admission and financial aid, please write to: Michigan Decision Research Consortium, c/o J. Frank Yates, Judgment and Decision Laboratory, Department of Psychology, University of Michigan, 330 Packard Road, Ann Arbor, MI 48104-2994, U.S.A. Bitnet: USERGB1W@UMICHUM Phone: 313-763-2092

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Adam's Mark/St. Louis Welcomes **JUDGEMENT AND DECISION MAKING SOCIETY**
 NOVEMBER 15-16, 1992

Reservation Deadline OCTOBER 15, 1992

Arrival date: _____

Number of nights you will stay: _____

Number of people in room: _____

Approx. arrival time: _____
(check-in 3p.m., check-out 12:00 noon)

Method of transportation:

Car Air Other

Please Note: Special conference rates are based on reservation deadline. After this date, all subsequent reservations will be subject to availability and current hotel rack rates.

Special Conference Rates (circle rate desired)*				
	Single Bedded Room	Two Bedded Room	Concierge Floor	Suites
Single (1 person)	\$92		\$130	Phone hotel directly if suite is desired
Double (2 people)	\$104	\$104	\$145	
Triple (3 people)				
Quad (4 people)				
Suites	Rates \$ 247 & up.			

Check here ___ if rollaway is needed (\$15.00 ea.)

*If rate requested is not available, the next available rate will be assigned. To secure lowest available rate, early response is suggested.

Name (last) _____ (first) _____ (initial) _____ Company: _____

Address _____ City _____ State _____ Zip _____

Phone (_____) _____ Sharing room with: _____

Special Requests: Prefer non-smoking Other (specify) _____
(Note: Every attempt will be made to honor your request, however we cannot guarantee a special request.)

To guarantee your reservation we require first night's deposit or credit card guarantee. Include 9.475% room tax with deposit plus \$2.00 city tax. **DO NOT SEND CASH.** Make check or money order payable to the Adam's Mark Hotel.

Amer. Exp. # _____ Exp.: _____

Check # _____ Amount _____

The preceding methods of payment are acceptable to guarantee your guest room. Upon arrival we also accept Visa/Mastercard, C.B./Diners and Discover Card.

_____ (signature) _____ (date)

A room confirmation will be mailed to you within 1 week.

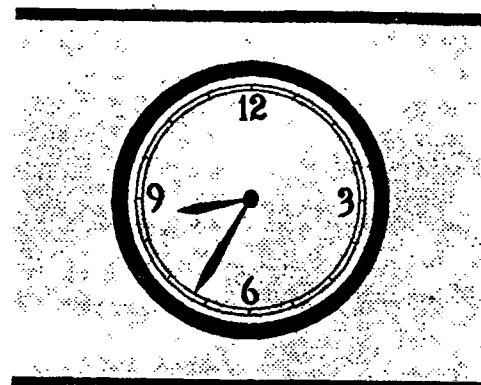
DON'T BE A NO-SHOW!
To cancel your reservations call 1-314-241-7400. Deposit refunded only if reservation is cancelled 48 hours prior to arrival and you have your cancellation number.

1993 AUDIT JUDGMENT SYMPOSIUM

CALL FOR PAPERS

THE ELEVENTH USC/D&T AUDIT JUDGMENT SYMPOSIUM

On February 15 & 16, 1993, the Center for Accounting Research at the University of Southern California will host the eleventh annual Audit Judgment Symposium. The Symposium, which is supported by a grant from the Deloitte & Touche Foundation, will feature papers, panels, and presentations that focus on cognitive and decision support aspects of audit judgment research. As has been our tradition, we are interested in behavioral science, cognitive science, artificial intelligence and expert systems research.



It is time to start thinking about the USC/D&T Audit Judgment Symposium

SYMPOSIUM OVERVIEW

The primary objective of the Symposium is to explore research issues, problems, and opportunities with respect to the role of judgment in auditing. Traditionally, the Symposium begins with a plenary session that overviews current research in a related cognitive area, such as psychology, behavioral decision theory, or artificial intelligence/expert systems. In addition, there are sessions on current audit judgment research and panels discussing current developments and research opportunities within auditing.

SUBMISSION GUIDELINES AND DEADLINE

Although papers submitted to the eleventh Audit Judgment Symposium will not be published, authors should nonetheless follow the "Instructions to Authors" published in Auditing: A Journal of Practice and Theory. Please pay particular attention to the format and length requirements ... manuscripts should not exceed 7,000 words or approximately 18 - 25 double-spaced pages including tables, figures, and references. Anyone interested in participating in the Symposium should send four copies of your paper or presentation idea by October 1, 1992, to:

Professor Theodore J. Mock
Center for Accounting Research
School of Accounting
University of Southern California
Los Angeles, CA 90089-1421

Phone: (213) 740-4845 FAX: (213) 747-2815

Don't be left holding the bag. Be sure we receive your submission before the October 1, 1992 deadline

J/DM Election Ballot, 1992

All members are urged to vote in this election for new officers. The person elected as President-Elect will serve as President-Elect (1992-93), as President (1993-94), and as Past President (1994-95). The person elected to the Executive Board will serve a three-year term, 1992-1995. Current officers of the Society are listed on Page 2 of this Newsletter.

President-Elect (vote for one)

- Reid Hastie
 Duncan Luce
 Frank Yates

Executive Board (vote for one)

- Colin Camerer
 Janet Snizek
 Elke Weber

Please mail your completed ballots to:

J/DM Election
c/o Terry Connolly
MAP Dept, BPA
University of Arizona
Tucson, AZ 85721

BALLOTS MUST BE RECEIVED BY NOVEMBER 7, 1992

RESULTS WILL BE ANNOUNCED AT THE ANNUAL MEETING

SOME UPCOMING MEETINGS

Society for Medical Decision Making: Fourteenth annual meeting is at the Portland Marriott in Portland, OR, October 17-20, 1992. For more information contact: Society for Medical Decision Making, The George Washington University, Office of CME, 2300 K Street NW, Washington DC 20037. Telephone: (202) 994-8929. Email: smdm-office@camis.stanford.edu

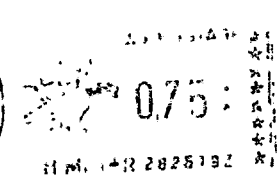
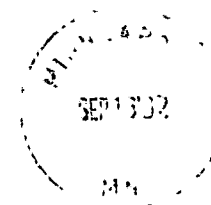
ORSA/TIMS: Joint national meeting will be at the Hilton Hotel, San Francisco, CA, November 1-4, 1992. For more information contact the General Chair of the meeting: Chaiho Kim, The Leavey School of Business, Santa Clara University, Santa Clara, CA 95053. Telephone: (408) 554-6832.

Society for Computers in Psychology: Annual meeting will be at the Adams Mark Hotel, St. Louis, MO, November 12, 1992. For more information contact: Douglas Eamon, Secretary/Treasurer, SCiP, Department of Psychology, University of Wisconsin at Whitewater, Whitewater, WI 53190. Program co-chairs are: Peter Hornby and Margaret Anderson, Department of Psychology, SUNY, Plattsburgh, NY 12901. BITNET: compsych@snyplava

Psychonomic Society: 33rd annual meeting will be at the Adams Mark Hotel, St. Louis, MO, November 13-15, 1992. Papers from selected sessions of interest to J/DM members are shown on pp. 7-8 of this newsletter. For more information contact: Cynthia Null, Secretary-Treasurer, P.O. Box 7104, San Jose, CA 95150-7104. Telephone: (415) 604-1260. Email: cnull@eos.arc.nasa.gov

Judgment/Decision Making Society: Annual meeting will be at the Adams Mark Hotel, St. Louis, MO, November 15-16, 1992. See this newsletter for details.

JIDM NEWSLETTER
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FIRST CLASS MAIL

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