

## 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 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 Introduced by Lola Lopes
	Where Do We Go from Here? After Heuristics and Biases
11:00-11:15	Commentary by Daniel Kahneman, UC Berkeley Reply by Gigerenzer
11:15-11:30	Discussion
11:30-1:00	Lunch
12:00-12:45	Presidential Address (in the Lunch Room): Robin Hogarth, University of Chicago Introduced by Danny Kahneman
	Ambiguity and Arguments
12:45-1:00	Discussion
1:00	Adjourn to Meeting Room

1:00-2:45 pm	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 Mark Spranca, UC Berkeley Omission Bias and Related Phenomenon
	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 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

## **Teaching Forum**

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

Sunday Evening, November 15, 1992

### **LIST OF PARTICIPANTS**

Colin Camerer, University of Chicago

Teaching Issue Note: "Natural Examples of Availability and Representativeness Thinking"

Len Dalglish, University of Queensland

Syllabus: "Judgement and Decision Making"

Baruch Fischhoff, Carnegie Mellon University

Syllabus: "Behavioral Decision Making"

Kenneth Hammond, University of Colorado

Syllabus: "Human Judgment and Social Policy"

Lynda M. Kilbourne, Texas A&M University

Teaching Technique Note: "Decision Making in Human Resource Management: A Classroom Simulation"

Don Kleinmuntz, University of Illinois

Syllabus: "Managerial Decision Making"

Syllabus: "Decision Processes and Models for Accountancy"

R. Duncan Luce, University of California, Irvine

Teaching Technique Note: "Summary of Major Features of Conditional Probability and Bayes's Theorem"

Scott Plous, Wesleyan University

Teaching Technique Note: "Class Survey"

Lori Van Wallendael, University of North Carolina at Charlotte

Teaching Issue Note: "J/DM Representation in the Introductory Psychology Course"

J. Frank Yates, University of Michigan

Syllabus: "Decision Processes"

Teaching Technique Note: "Problem-Focused Search and Writing Assignments"

# 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 are suggestive of an availability bias.

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

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 Schnedier, 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.



"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 measures 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 nometric multiple-cue probability learning, found greater utilization for configural information when the relevant pattern contained a relevant 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

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 electing 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, category 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



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.

"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



(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

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 & **Fergus Bolger**, University College London.

A key finding in probability-judgment research is that calibration varies systematically as a function of task difficulty. Ferrell and McGoey (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."

"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. Snizek**, 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. Omodel**, University of Melbourne, **Alexander J. Wearing**, University of Melbourne, **Jane Gilbert**, University of Melbourne, & **Noel Olver**, 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 'crosssectional' 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.



"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 an 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. Pliske, 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.

Subjects made 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.

"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 Framing Effects in Employee Benefits Selection," Maurice Schweitzer, University of Pennsylvania.

Many employers 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 influence by sample size manipulation and the rate of updating deceased 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 Pyelonephritis," 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, Joselito 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.



"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 more 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 ( $\leq .05$  or  $\geq .95$ ). 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. Price**, 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 it 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. Traller**, 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 configularity. 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.