ANNUAL MEETING

SOCIETY FOR JUDGMENT AND DECISION MAKING

November 19-20, 1989
Hyatt Regency Atlanta Hotel
Atlanta, Georgia

PROGRAM

SUNDAY, NOVEMBER 19:

1:45-2:00
York/Stuart Room

Opening Remarks

FRANK YATES, Program Chairperson, University of Michigan

2:00-3:15
York/Stuart Room

Invited Presentation: "Who Uses the Normative Rules of Choice?"

RICHARD NISBETT, University of Michigan.

Introduction: **DANIEL KAHNEMAN**, University of California, Berkeley.

Discussant: **RICHARD THALER**, Cornell University

3:15-3:45

Coffee Break

3:45-5:15
York/Stuart Room

Symposium: "Judgment, Decision Making, and Global Security"

Organized by **DAVID HOLTGRAVE**, University of Oklahoma.

"Presidential Decision Making," **DONALD HORNIG**, Harvard University

"Studying First-Strike Stability with Knowledge-Based Models of Human Decision Making," **PAUL DAVIS**, RAND Corporation

"The Cognitive Characteristics of Negotiators and the Structure of Negotiations," **JERYL MUMPOWER**, SUNY-Albany.

Discussants: **ELKE WEBER**, University of Chicago, and **WILLIAM K. ESTES**, Harvard University .

5:15-6:15
York/Stuart Room

Business Meeting

6:15-8:15
Condor Room

Poster Session (33 Presentations),

Syllabus Exchange, and

Reception with Cash Bar (All Society members are invited to bring copies of their judgment and decision making course syllabi.)

MONDAY, NOVEMBER 20:

8:00-8:30   Continental Breakfast — *Phoenix Room*

8:30-10:00   *Symposium:* "Insurance Decision Making"
Phoenix Room

Organized by **HOWARD KUNREUTHER**, University of Pennsylvania.

"The Psychology of Buying and Selling Insurance," **GARY McCLELLAND &
WILLIAM SCHULZE**, University of Colorado

"The Psychology of Crop Insurance Decisions: Why Isn't Anyone Buying?"
JAMES SHANTEAU & IDA M.L. NGUI, Kansas State University

"Ambiguity Matters: Insurance Pricing Decisions," **HOWARD KUNREUTHER**,
University of Pennsylvania, & **ROBIN HOGARTH**, University of Chicago.

10:00-10:30   Coffee Break

10:30-11:45   *Invited Presentation:* "Case-Based Reasoning for Understanding and Improving
Phoenix Room   Human Judgment"

JANET L. KOLODNER, Georgia Institute of Technology.

Introduction: **REID HASTIE**, University of Colorado.

11:45-1:00   Luncheon — *Lancaster A/B/C Room*

1:00-2:00   *Chairperson's Address:* "Social Dilemmas and Economic and Evolutionary
Phoenix Room   Theory"

ROBYN DAWES, Carnegie-Mellon University.

Introduction: **LOLA LOPES**, University of Wisconsin.

2:00-3:30   *Symposium:* "Violations of Procedure Invariance: Compatibility Bias and Task-
Phoenix Room   Contingent Strategies in Judgment and Choice"

Organized by **GREGORY W. FISCHER**, Carnegie-Mellon University.

"Strategy Compatibility, Scale Compatibility, and the Prominence Effect,"
GREGORY W. FISCHER, Carnegie-Mellon University, & **SCOTT HAWKINS**,
University of Chicago

"Heuristic Processes in Judgment: Effects of Compatibility and Information
Load," **ERIC J. JOHNSON**, University of Pennsylvania, **JAMES R. BETTMAN**,
Duke University, & **JOHN W. PAYNE**, Duke University

"Reversal of the Preference Reversal Phenomenon: Adaptive Strategy Selection
in Bidding?" **JEFF T. CASEY**, SUNY-Stony Brook.

3:30   Adjournment

ORAL PRESENTATION ABSTRACTS

Invited Presentation: "Who Uses the Normative Rules of Choice?" **RICHARD NISBETT**

People can apply the cost-benefit rules of normative microeconomic theory to their everyday decisions. Two factors are associated with rule use: 1) formal training in the rules, and 2) career success. These results indicate that extremely general rules govern choices across a wide range of domains and the use of the cost-benefit rules can be improved through training. They also broaden the normative foundation of cost-benefit theory.

Symposium: "Judgment, Decision Making, and Global Security"

Recently, Kenneth Hammond challenged members of the Society to bring to bear their knowledge of human cognitive processes on the all-important problem of international conflict. This symposium is devoted to the consideration of such applications. The symposium speakers bring a broad variety of experiences and perspectives to the topic, as do the discussants. One discussant teaches decision making in the arms control process, and the other serves on a National Academy of Sciences Committee focused on using the behavioral sciences to help prevent nuclear war.

Symposium Presentation 1: "Presidential Decision Making," **DONALD HORNIG**

Having served as Science Advisor to Presidents Kennedy and Johnson, Dr. Hornig has first-hand experience in White House decision making. This service has given him a unique perspective on both normative and descriptive aspects of political judgment and decision making. In this address, Dr. Hornig will share some of his experiences and thoughts on presidential decision making, especially as related to global security.

Symposium Presentation 2: "Studying First-Strike Stability with Knowledge-Based Models of Human Decision Making," **PAUL K. DAVIS**

It is argued that efforts to understand and improve first-strike stability should be guided by a formal theory of human decision making that accounts for behavioral factors such as mindset, desperation, fatalism, perceptions, and fears. A natural way to express and communicate such a formal theory is to develop knowledge-based simulation models with enough flexibility to represent a broad range of alternative human behaviors. Previous RAND work has produced experimental models of national-command-level decision making with what appears to be the necessary flexibility and understandability. This talk outlines an approach using the concepts and methods of that prior work to explore the issues of first-strike stability in some detail.

Symposium Presentation 3: "The Cognitive Characteristics of Negotiators and the Structure of Negotiations," **JERYL MUMPOWER**

The underlying structure of negotiation problems is defined by the cognitive characteristics of negotiators. This paper discussed how relatively slight differences in how negotiators evaluate the utility of potential settlements can result in efficient frontiers with distinctly different shapes. It also presents results showing how negotiators persistently engage in behaviors which tend to lead to systematically suboptimal agreements.

Symposium: "Insurance Decision Making"

Insurance decision making is a particularly fruitful area for research in judgment and decision making. The three papers presented in this session provide empirical data from the laboratory and the field on the types of biases and heuristics influencing the decisions to buy or sell insurance. The studies suggest that the concepts of probability are not very well understood (e.g., the gambler's fallacy exists) and that individuals are greatly affected by ambiguity and context in ways not predicted by standard models of choice. An open discussion will follow the three presentations, focussing on the implications of these findings for prescriptive analysis and the role of insurance as a policy instrument for dealing with low-probability, high-consequence events.

Symposium Presentation 1: "The Psychology of Buying and Selling Insurance," **GARY McCLELLAND & WILLIAM SCHULZE**

Our experiments in insurance buying and selling in market auction settings reveal a characteristic violation of subjective expected utility predictions. Namely, insurance bids for low probabilities and for offers to sell insurance at any probability have a distinctly bimodal distribution. A maximin rule applied to losses usefully models these data. The appropriateness of the model is especially highlighted when comparing bidding behavior for insurance against losses to bidding behavior for purchases of positive lotteries with comparable probabilities and dollar amounts.

Symposium Presentation 2:   "Ambiguity Matters: Insurance Pricing Decisions," **HOWARD KUNREUTHER & ROBIN HOGARTH**

This presentation reports on the findings of a recent survey of U.S. underwriters on their pricing decisions. Each of the underwriters was presented with a set of scenarios which varied the levels of knowledge concerning probabilities and losses for different types of coverage. Ambiguity in either probability estimates and/or loss estimates led underwriters to charge a considerably higher premium than for the case where there were precise estimates of these two parameters. Underwriters appear to be influenced in their premium setting process by the type of coverage (e.g., earthquake, hazardous waste) independently of the magnitude of the probability and loss.

Symposium Presentation 3:   "The Psychology of Crop Insurance Decisions: Why Isn't Anyone Buying?" **JAMES SHANTEAU & IDA M. L. NGUI**

The purpose of this presentation is to describe research on perceived risk in crop insurance decisions. The results of several studies reveal that (1) for natural hazards, such as floods or droughts, there is a consistent tendency to underestimate the chances of a reoccurrence--the gambler's fallacy, (2) man-made events (an accidental flood) are viewed as more likely to reoccur--the opposite of the gambler's fallacy, and (3) willingness to buy insurance is unaffected by preceding events. Thus, once a low-probability natural event occurs, people feel "inoculated" against a repetition.

Invited Presentation: "Case-Based Reasoning for Understanding and Improving Human Judgment," **JANET L. KOLODNER**

Case-based reasoners solve problems by adapting old solutions to new problems. They understand new situations by comparing and contrasting them to old similar situations. Both experts and novices have been observed using case-based reasoning for problem solving and understanding, especially in ill-understood situations. Several computer programs have been written that implement case-based reasoning processes. We first present an overview of case-based reasoning and then discuss what it tells us about human decision making. We close by proposing a set of case-based tools to teach and aid decision making.

Chairperson's Address: "Social Dilemmas and Economic and Evolutionary Theory," **ROBYN DAWES**

Social dilemmas are collective situations in which egoistic incentives yield individually dominating strategies that converge on deficient equilibria -- that is, on outcomes that are less preferred by the chooser than are alternative outcomes (e.g., the 2-person Prisoner's Dilemma). The wide-spread existence of such situations in contexts of interacting individuals provides normative and descriptive challenges to both classical (Western) economic/political theory and to evolutionary theory based on sociobiological assumptions. The standard response to these challenges has been to postulate side-payments that make otherwise dominating strategies in social dilemma situations no longer dominating. This presentation describes a theoretical analysis of this response as well as experiments bearing on the issue.

Symposium: "Violations of Procedure Invariance: Compatibility Bias and Task-Contingent Strategies in Judgment and Choice"

The procedure invariance principle holds that preferences should not differ across strategically equivalent response modes. Two violations of this fundamental normative principle are well-known: the choice vs. bidding preference reversal in risky choice and the choice vs. matching preference reversal in riskless choice. The papers presented provide evidence of new violations of procedure invariance and also test compatibility bias and contingent strategies explanations of why procedure invariance fails.

Symposium Presentation 1:   "Strategy Compatibility, Scale Compatibility, and the Prominence Effect," **GREGORY W. FISCHER & SCOTT HAWKINS**

We examine Tversky, Sattath, and Slovic's (1988) compatibility explanation of the prominence effect by studying a broader range of response tasks: not only choice and matching, but also minimum selling price, rating scale, strength of preference, and difference comparison judgments. We also extend their work by testing the prominence effect with four- attribute alternatives. Finally, we use information acquisition and response time data to evaluate a contingent strategies explanation of the prominence bias.

Symposium Presentation 2:   "Heuristic Processes in Judgment: Effects of Compatibility and Information Load," **ERIC J. JOHNSON, JAMES R. BETTMAN, & JOHN W. PAYNE**

In a judgment task, we examine how decision makers change strategies when faced with (1) changes in the compatibility between attributes and the response scale, and (2) changes in the number of attributes which describe the options. We present two studies which used process analysis to examine strategy changes caused by these manipulations, and examine how these strategy changes affected the resulting judgments. Specifically, we examine compatibility effects (Tversky, Sattath, & Slovic, 1988), and hypothesize that specific process mechanisms, in particular, anchoring and insufficient adjustment, may mediate these effects.

Symposium Presentation 3: "Reversal of the Preference Reversal Phenomenon: Adaptive Strategy Selection in Bidding?" **JEFF T. CASEY**

When bids are maximum buying prices and bets have large ($100) expected values and minimum payoffs of $0, the widely-replicated preference reversal phenomenon gives way to an opposite reversal pattern – the "safe" bet receives a higher bid even when the "long-shot" is chosen. The proposed explanation involves contingent selection of compatibility- or aspiration-based strategies in bidding. Task variables and alternative ways of framing the buying task that seem to affect strategies and reversals are discussed.

POSTER PRESENTATION TITLES, AUTHORS, AND ABSTRACTS

Presentation 1: "Apparency: Guiding Sequential Decision Making by Revealing Inherent Contingencies," **KENT L. NORMAN & SCOTT A. BUTLER**, University of Maryland

The effect of making apparent decision contingencies in a control system was investigated using computer menu selection. Thirty-two students were asked to perform functions that required three prior decisions. The system contained hierarchical constraints that dictated the appropriateness of 256 possible decision paths to four target functions. Showing all paths without contingencies provided no help. However, two guidance systems that revealed possible paths based on backtracking from the target cut the search in half.

Presentation 2: "Distinguishing Adding and Averaging Models When Interdimensional Correlations Vary," **CAROLYN M. JAGACINSKI**, Purdue University

A popular method of distinguishing adding and averaging models compares ratings of entities described by two dimensions to ratings when only one dimension is presented. The validity of this technique is questionable since evaluators often predict the missing dimension (based on the interdimensional correlation) rather than weighting it zero. Two experiments investigating methods of distinguishing these models found additive models with a negative interdimensional correlation, averaging models for a positive correlation and inconsistent results for zero correlation.

Presentation 3: "What's New in Nonmetric Multiple-Cue Probability Learning," **STEPHEN E. EDGELL & RANDY D. BRIGHT**, University of Louisville

Subjects' lag one recall of stimuli, that were previously found to have differential salience in nonmetric multiple-cue probability learning, showed a monotonic relationship between memory errors and utilization in the probability learning studies. This gives a possible explanation for the previously found saliency effects. Another study found higher (but not significantly) utilization of configural information when the relevant dimension was within the relevant pattern rather than outside it as was predicted by a recent theory.

Presentation 4: "Lens Model Analysis of Hemodynamic Status in the Critically Ill," **THEODORE SPEROFF, ALFRED F. CONNORS, JR., & NEAL V. DAWSON**, Case Western Reserve University

The lens model recently has been extended to consider multiple outcomes and sequential use of clinical information. We have used this extended model a) to describe the relationship between clinical information and physicians' assessment of hemodynamic status, b) to describe the empirical relationship between clinical information and physiologic measures of hemodynamic status, and c) to compare physicians' use of information with its empirical utility. The lens model describes limitations of physician judgment and helps explain how patient features relate to measured hemodynamic status.

Presentation 5: "Maximizing Judgment Accuracy vs. Maximizing Performance," **REBECCA HENRY**, Purdue University, & **JANET A. SNIEZEK**, University of Illinois at Urbana-Champaign

Three factors hypothesized to affect the degree of overestimation in judgments of future performance, and confidence in those judgments were studied. Individuals overestimated their performance levels the least, and were least confident, when perceived internal control was low and when no monetary rewards were involved. Public disclosure of the judgments had no effect. These results are discussed in terms of the dilemma of choosing between maximizing judgment accuracy vs. maximizing performance.

Presentation 6: "Out of Pocket versus Opportunity Costs: Framing Effects and Sunk Costs," **HOLLY A. SCHROTH & DAVID M. MESSICK**, University of California, Santa Barbara

Three experiments are reported in which subjects read scenarios about sunk costs. The sunk costs manipulated are either out of pocket costs or opportunity costs (foregone gains), compared to no sunk costs. The nature of the competing incentive provided to forfeit the sunk cost was also manipulated; in some cases, additional direct costs would have had to be paid to honor the sunk cost, while in other cases a monetary incentive was provided to abandon the sunk cost. With direct competing cost incentives, the sunk opportunity cost was comparable to the no sunk cost condition, but with positive incentives to relinquish the sunk cost, the sunk opportunity cost was similar to the sunk out of pocket cost. The findings are interpreted in terms of the different types of evaluative processes that are evoked by the different competing incentives.

Presentation 7: "Order and Framing Effects in Decision Making," **DEBORAH FRISCH & SCOTT SHANNON**, University of Oregon

> Sixteen pairs of framing effects were presented to subjects. The two members of each pair were presented sequentially so that order effects could be examined. Three types of order effects were found: "dominant frame" effects, in which one version of the problem influenced the second version, but not vice versa, anchoring effects, and contrast effects. These results provide insight into which way of framing a decision is most natural to subjects.

Presentation 8: "Risk Aversion and the St. Petersburg Game," **J. CARLOS RIVERO**, New York University, & **DAVID HOLTGRAVE**, Harvard School of Public Health

> Samuelson (1977) has proposed that risk averse buyers and sellers of the St. Petersburg game would never agree on a fair market price for the gamble. However, our study demonstrates that subjects, who otherwise obey prospect theory, fix St. Petersburg game buying and selling prices that are not significantly different. We are left to ponder: are these subjects not risk averse, or can a St. Petersburg market exist for risk averse subjects?

Presentation 9: "Beyond Prospect Theory: Time and the Valuation of Outcomes," **MARYANNE M. MOWEN & JOHN C. MOWEN**, Oklahoma State University

> A mathematical model of time and the valuation of outcomes was developed and used to derive a wide variety of decision phenomena: including individual effects, sunk costs, and procrastination. Based upon concepts from approach-avoidance conflict theory (Miller, 1959), the model proposes that the prospect theory hypothetical value function changes as individuals consider outcomes that have occurred in the past, are about to happen in the present, or will occur in the future.

Presentation 10: "Conformity and Confidence: A New Perspective," **ORLANDO OLIVARES**, New Mexico Highlands University, & **WAYNE POWELL**, Gonzaga University

> The conformity/confidence relationship has been part of psychological research for over thirty years. The general finding is an inverse relationship between conformity and confidence. In the conformity/confidence literature, confidence has always been measured as an amount. Measuring the amount of confidence is only one aspect, or dimension, of confidence; therefore, the relationship between conformity and confidence has been examined only in a limited sense. This paper introduces the concept of accuracy of confidence as well as the amount of confidence. This study, using predominantly Hispanic subjects, found no relationship between conformity and amount of confidence, or conformity and calibration. There was a pervasive finding of overconfidence, and males were significantly more confident, and more inaccurate in their assessment of confidence, than females.

Presentation 11: "Improving Group Judgment Calibration: Increasing Disagreement and Reducing Certainty," **JANET A. SNIEZEK**, Cornell University, & **PAUL W. PAESE**, University of Missouri, St. Louis

> In this experiment, subjects first made judgments individually and then made the same judgments collectively in three-person groups. During the individual judgment stage, various anchoring manipulations were used to influence the amount of agreement in members' judgments prior to the group meeting. Results indicated that as disagreement among members' individual judgments increased, calibration in group judgment improved significantly. Group calibration was also positively related to the amount of explicit consideration given to individual judgments during the group judgment stage.

Presentation 12: "Framing, Group Decision Making, and Group Processes," **R. SCOTT TINDALE & SUSAN SHEFFEY**, Loyola University

> Subjects had their initial frames of reference concerning a decision problem (Asian Disease problem, Tversky and Kahneman, 1981) manipulated in order to compose 4-person groups containing members with different frames of reference. Three different group compositions (number of members with gain-oriented vs. loss-oriented frames) were used: 3 gain-oriented and 1 loss-oriented, 2 gain-oriented and 2 loss-oriented, and 1 gain-oriented and 3 loss-oriented. Results indicated a post-group discussion choice shift toward the risky alternative in the 2-2 and the 1-3 composition conditions. However, changes in members' frames of reference were unrelated to the preference changes. Group composition also affected group decision processes. Implications for theory in small group decision making are discussed.

Presentation 13: "Extrapolation, Efficiency, and Stock Market Overreaction," **PAUL B. ANDREASSEN**, Harvard University

> Stock market prices "overreact." Stocks that were previously losers subsequently outperform stocks that were previously winners. The original account of this phenomenon -- base rate neglect and overweighing of recent news -- cannot explain why the effect (1) is concentrated among the loser stocks, or (2) occurs primarily in the month of January. A model based on judgmental extrapolation (i.e., naive time-series analysis) is proposed and supported by the results of two market simulation studies.

Presentation 14: "Practical Intelligence Training, Audio-Feedback, and Managerial Success in Judgment/Decision Making," **MILTON TAYLOR**, International Behavioral Medical Center, & **NAOMI KAMEI**, Princeton University

This study evaluated the value of practical intelligence training as an educational technique. Training and presentation of audiofeedback were manipulated. A nonequivalent comparison group of executives represented a condition of no training, nor feedback. Business students were randomly assigned to a treatment group or delayed treatment group, representative of when feedback was presented to supplement training. Dependent variables were: number of problems solved, number of problems attempted, and thinking style rigidity. Delayed treatment subjects were more rigid than comparison subjects. Furthermore early treatment subjects were less rigid than delayed treatment subjects. Subjects' thinking style was not correlated with problem solving behaviors. Suggestions were made for improving practical intelligence research. An implication of the results was that providing delayed feedback makes subjects more rigid in their thinking style.

Presentation 15: "The Advisor-Judge Relationship: Social Influence in Decision Making," **JANET A. SNIEZEK**, University of Illinois at Urbana-Champaign, & **TIMOTHY BUCKLEY**, Cornell University

The quality of decision made by a judge after consultation with two advisers is investigated under varying conditions of information availability and processing on the part of the judge. The best decisions were made by judges who formed tentative opinions prior to receiving advice. However, judges were not confident about their choices when only their advisors, and not they, could bring expertise to the decision task. Further directions for theory and research on social decision making under uncertainty are suggested.

Presentation 16: "The Effects of Activity Level on Decision Strategies in Young Children," **A. B. MILLER, A. C. BROBECK**, Delaware State College, & **L. S. HYNAN**, University of Illinois at Urbana-Champaign

This study examines the impact of differing activity levels on the decision strategies of children between 3 and 5 years of age while they were engaged in a yes-no signal detection task. The results demonstrate the ability of children in this age range to utilize complex decision strategies in making probability judgments and the negative relationship between performance efficiency and activity level in a task requiring effective use of memory and attention.

Presentation 17: "Judgment in Motivation: Some Aspects of the Judgment-Behavior Link," **FRED SWITZER**, Clemson University

Earlier research (Switzer & Sniezek, 1988) found that judgments of contingent relations between motivation and expected performance were consistent with the operation of an anchoring and adjustment heuristic and its attendant biases (e.g., insufficient adjustment, use of irrelevant anchors, etc.). However, there were no concomitant effects on behavior. The present studies were designed to examine the link between judgment and behavior, including possible mediators of that relation.

Presentation 18: "Resource-allocation behavior under certainty, risk and uncertainty," **HARVEY LANGHOLTZ & CHARLES F. GETTYS**, University of Oklahoma

Resource-allocation behavior was studied in a simulated Coast Guard planning task under conditions of certainty, risk, and uncertainty which can be modeled using LP. Subjects in the certainty and risk conditions achieved over 90% of the payoff of an optimal allocation policy, while subjects in the uncertainty condition did noticeably worse. Subjects usually did not expend all of their resources, and tended to use more of their resources in the early stages of their mission.

Presentation 19: "A Study on Human Control in Stock-Adjustment Tasks," **ERNST W. DIEHL & JOHN D. STERMAN**, Massachusetts Institute of Technology

Decision rules are likely to vary with respect to the feedback structure of the task to be solved. In a computer-assisted laboratory study we investigated how subjects solve the same dynamic stock-adjustment task under different feedback characteristics. The feedback structure was varied along two dimensions: strength of feedback and delay of feedback.

Presentation 20: "Decisions About Retirement Planning: Influences of Prior Knowledge on Decision Quality," **DOUGLAS A. HERSHEY & DAVID A. WALSH**, University of Southern California

Three groups of decision makers, varying in their knowledge of financial planning, were required to make six complex investment decisions. In each of the six cases, subjects decided whether hypothetical individuals should (a) invest in a supplementary retirement savings plan, and, in cases where the investment was recommended, (b) determine how much income should be contributed. Analyses focus on deviations from optimality as a function of group membership, and the extent to which deviations correlate with self perceptions of decision quality.

Presentation 21: "Evaluating Money: Temporal Influences on Context," **TERRY L. BOLES & DAVID M. MESSICK**, University of California, Santa Barbara

The idea that a stimulus may evoke its own norms or context (Kahneman & Miller, 1986), was investigated in two experiments using a social context. Subjects unexpectedly received a dollar as payment for their participation. However, it was an unfair allocation that was supposedly made by another subject who had $6 to divide between the two. Of interest was whether subjects would keep the unfair allocation or refuse it, thereby preventing the "other" subject from receiving any money either. An evaluative context that focuses only on the money should induce subjects to keep the dollar since one dollar is preferred to nothing, all else equal. A context that focuses on fairness, however, could lead subjects to reject the dollar since it falls below the $3 that an equal division would allocate. Varied, in these experiments, was whether subjects received the dollar before, at the time, or after they received information about the allocation procedure. We found that temporal order, that is, receiving the dollar first, was successful in making subjects focus more on the money context, therefore keeping the money more often than when the focus was on the procedure first. The second experiment, which asked for judgments of the importance of different evaluative dimensions, suggests that the weights associated with the choice dimensions may be constructed after the decisions are made, not before.

Presentation 22: "The Effect of Emotional Involvement on WTA/WTP and Choice/Matching Differences," **JULIE R. IRWIN & GARY H. McCLELLAND**, University of Colorado

Three studies were designed to test whether environmental issues, which often induce a great deal of emotion, would produce greater choice/matching and WTA/ATP differences than would everyday commodities. In this first study, subjects were given 10 trades, 5 of which involved environmental conditions and 5 of which involved everyday commodities. For example, an environmental trade might involve trading dirtier air for cleaner air; a commodity trade might involve trading a 3-speed bicycle for a 10-speed bicycle. Subjects either ranked the 10 trades or gave monetary values for the trades. Also, the trades were framed in terms of WTP-gain (e.g., the most they would be willing to pay to trade up to the nicer bicycle) or WTA-loss (e.g., the most they would be willing to accept to trade down to the less nice bicycle). For both ranks and monetary values, the within-subject difference between the environmental trade values and the commodity trade values was significantly greater for the WTA condition than for the WTP condition (see graph below). There was no difference in ranks due to the rank/monetary value variable. These findings indicate that commodities inducing higher emotional involvement will show greater WTA/WTP differences. Current research includes an addition of WTP-gain and WTA-loss cells, as will as more specific tests for choice vs. matching differences due to emotional involvement.

Presentation 23: "Factors Affecting Tradeoff Difficulty," **JANE BEATTIE**, University of Chicago

We investigated why some attributes ("lives" and "money") are perceived as more difficult to trade off than others (e.g., "time" and "money"). Subjects rated each of 80 different tradeoffs for its difficulty, then rated it on 12 other features that were hypothesized to influence tradeoff difficulty (e.g., similarity and importance of alternatives). For most subjects, rating of difficulty could be successfully predicted from the ratings on the other features. Six factors were particularly useful predictors.

Presentation 24: "Multiattribute Decision Making Under Uncertainty," **LINDA S. G. HYNAN**, University of Illinois at Urbana-Champaign, & **ELKE U. WEBER**, University of Chicago

Present work in multiattribute decision making has been concerned with decisions made in contexts where alternatives and dimensions are presented as certain outcomes (e.g., selection of apartments). However, most real-life problem situations have alternatives with dimensions at probability levels different than 100%. An application of decision making in an uncertain context was presented to subjects using process tracing techniques. It was found that, as the number of dimensions and alternatives increased, processing became more dimensional.

Presentation 25: "Judging Recession: Are Professional Economic Forecasters Calibrated and Well-Resolved?" **ILAN YANIV & PHILLIP A. BRAUN**, University of Chicago

We analyzed judgmental forecasts (probability range 0 - 1.0) of negative economic growth made by 105 US firms from 1968 to 1988, quarterly. Short-term forecasts (current and one quarter ahead) were modestly calibrated; long-term forecasts (2-, 3-, 4 quarters ahead) were overconfident. The resolution and slope indices sharply declined as the forecast horizon increased. The "consensus" forecaster (group mean) outperformed most individual forecasters on all measures, and, also, "naive" benchmark tests.

Presentation 26: "Automaticity and Similarity in Judgment," **KEVIN BIOLSI & EDWARD SMITH**, University of Michigan

Tversky and Kahneman (1983) have posited computation of similarity as a type of natural assessment. If "natural assessment" can be equated with "automatic process," then similarity judgments should exhibit the properties of more classical automatic processes (see Stroop, 1935). In particular, we find that, when pitted against less natural probability-based computations, similarity assessments lead to interference (as measured by response times and error rates) when these assessments conflict with the probability-based response and facilitation when the two agree.

Presentation 27: "Cultural Differences in Decision Making," **ROBERT BONTEMPO**, University of Illinois

Yates et al. (1989) report calibration scores for subjects from Japan, the U.S., and the PRC. Wright and Phillips (1980) present calibration scores for subjects from Great Britain, Hong Kong, and Malaysia. These data are re-analyzed and correlated with a measure of cultural variation known as Uncertainty Avoidance, described by Hofsteder (1980). 62% of the variance in cultural differences in calibration rates can be explained by cultural differences in Uncertainty Avoidance.

Presentation 28: "Diagnosticity of Evidence and Judgments of Guilt," **LORI R. VAN WALLENDAEL**, University of North Carolina-Charlotte

Subjects judged the guilt or innocence of accused criminals. For some decisions, all available evidence was highly diagnostic (e.g., "The criminal is almost certainly left-handed" - a trait which would be shared by few innocent persons), while for others, information was less diagnostic ("almost certainly right-handed"). Subjects requested as much information as they wished before passing judgment. Subjects exhibited greater confidence in decisions made with highly diagnostic information; however, the amount of information requested was <u>NOT</u> related to diagnosticity.

Presentation 29: "Motivational and Cognitive Effects in Hindsight Bias," **TERRY CONNOLLY & ED BUKSZAR**, University of Arizona

Hindsight bias is consistent with either motivational or cognitive explanations, the former stressing self-flattering assessments of one's predictive ability, the latter emphasizing more automatic information-processing limits. We report two experiments which, with other evidence, suggest that cognitive mechanisms predominate, and sketch implications for effective remedial strategies.

Presentation 30: "The Over-Under Confidence Paradox: High PI's but Poor Unlucky Me," **JANET A. SNIEZEK**, University of Illinois at Urbana-Champaign, & **FRED S. SWITZER III**, Clemson University

Research by Sniezek and colleagues has shown that people are more confident about each judgment or choice item than they are about the same items collectively. This study tests predictions from a dual-process model of confidence assessment in an attempt to explain this discrepancy. On item assessments, subjects were "overconfident," but overall they (a) under-estimated accuracy scores, (b) rated their task knowledge and confidence low, and (c) predicted poorer-than-chance performance.

Presentation 31: "Intentions, Decisions, and the Appropriateness of Confidence in Knowledge," **PAUL W. PAESE & MICHAEL A. FEUER**, University of Missouri-St. Louis

This research examines the appropriateness of confidence (i.e., subjective probability judgments) in knowledge that serves as the basis for voting intentions and voting decisions in the 1988 presidential election. Results indicated that, in comparison to knowledge that had no bearing on voting intentions or decisions, intention-relevant and decision-relevant knowledge was characterized by greater accuracy and worse calibration. In addition, actual voters were significantly more accurate and better calibrated than those who did not intend to vote. Implications of inappropriate confidence on decision making effectiveness are discussed.

Presentation 32: "Inverse Value-Induced Bias and Physicians' Judgments for Bacteremia," **ROY M. POSES**, Medical College of Virginia

We performed an observational study looking for value-induced bias affecting physicians' judgments of the probability of blood infections for 227 actual patients. The estimates had a negative correlation with the log of the computed doctors' assessments of the relative risk of death form bacteremia for each patient (R = -0.244, $\underline{p}$ < 0.001), persisting in multiple regression analyses to correct for confounding (coefficient = -3.1, $\underline{p}$ = 0.02). Physicians considered bacteremia less likely for patients most at risk of its consequences, suggesting an inverse value-induced bias.

Presentation 33: "Probability Score Decompositions as Complements or Alternatives to ROC Analyses," **J. FRANK YATES**, University of Michigan, **ILAN YANIV**, University of Chicago, **JU-WHEI LEE, & J.E. KEITH SMITH**, University of Michigan

ROC analyses are commonly used to analyze the accuracy of rating scale judgments, with an emphasis on discrimination skill. This paper proposes that ratings be reported as probability judgments and that those judgments be analyzed using probability score decompositions as well as ROC methods. The appeal of this approach is supported by newly demonstrated properties of decomposition statistics and by empirical data suggesting that those statistics do not lose important ROC information.

PROGRAM COMMITTEE:

<div align="center">

REID HASTIE, University of Colorado

THOMAS WALLSTEN, University of North Carolina

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