

# POSTER SESSION PROGRAM

November 24, 6:30 - 8:15 PM

Hyatt Regency—Pacific H-O

Annual Meeting Judgment and Decision Making Society November 24-25, 1991 San Francisco

# Jon M. Barnes and Stephen E. Edgell, University of Louisville

# Salience of Irrelevant Information in a Probabilistic Environment

Earlier work has shown that the physical representation of a relevant dimension in nonmetric multiple-cue probability learning affects the utilization level. This salience effect was theoretically explained by errors in memory affecting the perceived validity of the dimension. As a further test of this theory, the salience of an irrelevant dimension was varied. As predicted by the theory, no effect was found on the utilization of a second relevant dimension.

#### 2

N. Elizabeth Beckett, Gary McClelland, William Schulze, and Michael McKee University of Colorado

#### Incentive Effects in Auction Experiments

Two issues relevant to decision-making experiments were investigated—the validity of the Becker, DeGroot, Marschak (BDM) bidding mechanism and the effect of different payoff incentives on its efficiency. Under the normal full information condition, the BDM proved to be a valid procedure as well as being unaffected by variations in the payoff structure. Implications for future research are discussed.

#### 3

Jacob Birnberg, Sangho Do, and Donald V. Moser, University of Pittsburgh

#### Choice Strategies for Decisions Involving Sequential Events

When choosing between alternatives, each of which involves two stages, people often make nonnormative choices. We identify a strategy we call the "similarity strategy" which involves choosing the alternative for which the probabilities of success are most similar for the two stages (i.e., closest to equal). We demonstrate that the similarity strategy explains observed behavior better than other previously-identified choice strategies such as the "stay-in-the-game" strategy (i.e., choosing the alternative with the highest first-stage probability of success).

#### 4

#### Terry L. Boles, Northwestern University David M. Messick, University of California, Santa Barbara

#### The Evaluation of Outcomes Under Reference Point Conflict

A gambling paradigm was employed to investigate the evaluation of outcomes which fall above one reference point (won or lost) and below another (could have done better or worse with another choice). Results indicated winners who could have done better (had regret), were rated as less satisfied with the outcome and as having made poorer quality decisions than when they won the same amount but had no regret. Similarly, losers who could have done worse (had elation) were rated as more satisfied with the outcome and as having made better quality decisions than when they lost the same amount but had no elation. Players who lost \$300 but could have lost more, were actually rated as having made better quality decisions than players who won \$300 but could have won more.

F. Bolger, University College London G. Wright, Strathclyde Graduate Business School J. Gammack, Bristol Polytechnic G. Rowe, Bristol Business School

#### Effects of Expertise and Task on Risk Judgment

Underwriters and students judged the annual death-rate from various lethal events and also the likelihood of death from the same events given they happen to someone. Analysis of the underwriters' job suggested they would be significantly less biased than students for the latter judgments, but not the former. The results confirmed our prediction and are interpreted as evidence that cognitive biases may arise from the application of heuristics in lieu of relevant domain knowledge.

# 6

#### Brian H. Bornstein, University of Pennsylvania

David vs. Goliath: The Effect of Defendant's Wealth on Liability Attributions

Two experiments investigated the role in legal judgments of the "extra-legal" characteristic of defendant's wealth, from legal and Bayesian perspectives. In Experiment 1, wealthier civil defendants lost more often and paid more for the same injury. Experiment 2 showed subjects believed wealthier companies should be held to stricter safety standards, and their employees are more likely to be injured. In treating defendants differently depending on wealth, subjects violated legal guidelines but behaved as predicted by Bayes' Theorem.

# 7

Timothy Buckley and Janet A. Sniezek, University of Illinois at Urbana-Champaign

#### Passion vs. Preference: Motivation Factors Affecting Forecast Accuracy and Confidence

Two field experiments were conducted prior to Big Ten football games. Over 100 participants of a variety of ages made predictions on football games. Results provide evidence that despite an understanding of variations in environmental uncertainty this information was systematically dismissed. Forecast accuracy and confidence are explained as a function of social and motivational factors.

# 8

Adam B. Butler and Lisa L. Scherer, University of Nebraska at Omaha

A Test of Prospect Theory's Value Function in Riskless Contexts

Research in both cognitive (Stevenson, 1986) and behavioral (Rachlin, Castrogiovani, & Cross, 1987) paradigms has shown that delayed consequences are associated with an implicit risk. The present study examined the fit of prospect theory's value function for choices involving delayed gains and losses. Strong preferences for immediate gains and delayed losses were found. The most prevalent individual preference reversal was consistent with the prospect theory's value function.

N. John Castellan, Jr., National Science Foundation

Opportunities for Research Funding at the National Science Foundation

Michael L. DeKay and Gary H. McClelland, University of Colorado

# Predicting Concern for Endangered Species

Nonexperts reported their concern for each of 51 endangered species before rating them on 17 scales. Factor analysis of the scales revealed a two-factor solution. The first factor was a combination of familiarity and similarity of the species to humans. The second factor further differentiated plants from animals with low familiarity/similarity scores. These factors explained 91% of the variance in respondents' concern for various species. Similar results were obtained for a group of experts.

# 14

Rick DeLaCastro and Lisa Scherer, University of Nebraska at Omaha

Depth of Processing and Responsibility in Reducing Overconfidence

The tendency for decision makers to be overconfident in making judgments is well-documented (e.g., Ronis & Yates, 1987), yet research on reducing overconfidence is often conflicting. This study contrasts depth of processing (Sniezek et al., 1990) and decisional responsibility (Arkes et al., 1987) hypotheses for attenuating overconfidence. Preliminary data suggest that both decisional responsibility and depth of processing components contribute to the reduction of overconfidence.

#### 15

James K. Doyle and Reid Hastie, University of Colorado

Incentive Effects on Accuracy in a Complex Judgment Task

The effects of performance-contingent monetary incentives on the accuracy of judgments were examined in the context of a complex, memory-based estimation task. Subjects estimated the annual frequencies of 41 causes of death for the U.S. population and the annual enrollment in 41 undergraduate college majors at the University of Colorado. Incentives were rewarded either based on a "tournament" competition or an individual item-by-item "piece rate" rule. Incentive effects at both the individual and group levels are discussed, as well as the relations between incentives and ability, experience, confidence, and risk aversion.

# 16

Ananda R. Ganguly, John H. Kagel, and Donald V. Moser, University of Pittsburgh

The Effects of Biases in Probability Judgments in Asset Markets: An Experimental Examination of the Base Rate Fallacy

Experimental markets were used to examine whether the baserate fallacy affects market prices. We used a setting that produced a strong bias and collected probability judgments from traders before each trading period in order to assess how probability judgments and prices changed with market experience. We find that biased probability judgments have a strong effect on prices and that both the bias in probability judgments and the bias in prices persist despite experience with the market.

# 10

Shi-jie Chang, University of California, Berkeley

# Competitive Utility Choice Theory

An individual choice theory is proposed which does not require the Independence-from-Irrelevant-Alternatives (IIA) assumption necessary for Luce's choice axiom and the Logit model of choice. The key to my theory lies in the introduction of a concept called "competitive utility" that is based on alternative-wise and dimension-wise information processing. This "competitive utility" is a refinement of the traditional multiattribute utility and is especially developed for a probabilistic choice theory in order to retain the similarity information lost in the traditional multiattribute utility. A simplified form of the theory has been tested using Rumelhart and Greeno's choice data (1971, J. Math. Psych.), and the preliminary results are promising. The results show that the theory performs as well as Tversky's Elimination-by-Aspects model but requires considerably fewer parameters. In my theory, the number of free parameters is a linear function of number of dimensions, but in Tversky's model it is an exponential function of number of alternatives.

11

James M. Conley and Shawn P. Curley, University of Minnesota

#### Using Dempster-Shafer Belief Functions to Represent Degrees of Belief

For expressing degrees of belief, belief functions are a potentially useful alternative or supplement to probability functions. However, there is little empirical evidence to support their application. Subjects responded to various single and multiple pieces of evidence in a hypothetical legal task using belief functions. Subjects' responses were coded to describe how they interpreted the evidence in forming their beliefs. The results also inform future empirical research in, and practical application of, belief functions.

# 12

Alan D. Cooke and Barbara A. Mellers, University of California, Berkeley

Factors Affecting the Relative Importance of Cues in Multiattribute Judgment

An important question in the study of human judgment is: What factors influence the relative importance of cues in multiattribute judgment? We examine the role of three factors: (a) the range of stimuli presented for judgment, (b) the similarity between stimulus and response scale, and (c) the subjective correlation between criterion and cue. Our data suggest these factors influence relative importance, and the combined effects of factors are nonadditive. Implications of the research will be discussed.

Stacie Geller, Terry Connolly, and Lee Beach, University of Arizona

#### Case-by-Case vs. Policy-Based Decisions in Health Care

The purpose of this study was a comparison of health care priorities of physicians, legislators, and citizens. In particular, we were interested in the kinds of nonmedical factors that influence treatment decisions. A survey questionnaire was mailed to Arizona physicians, legislators, and registered voters (n=783). Participants were asked to what extent they thought it appropriate for the primary care physician to consider each of 11 factors in deciding whether or not to initiate a proposed course of treatment for a critically ill patient. Results showed significant differences between the physicians and citizens on 8 of the 11 factors.

# 18

Eric Gold, IBM Research Gordon Hester, EPRI

#### The Gambler's Fallacy and the Coin's Memory

Four experiments examined the role of the gambling device in explaining subject's acceptance of the gambler's fallacy. We found that an expectation of a particular outcome diminished when a new gambling device replaced an old one or when the experimenter paused just before generating the expected outcome.

# 19

#### Jennifer J. Halpern, Cornell University

#### The Effect of Information on Pricing Decisions in Negotiations Between Friends and Between Strangers

Negotiators' relationships influence financial transactions. Audiotapes of MBAs' negotiations with either friends or strangers were coded for information exchange and bargaining style. Strangers bargained harder than friends, but nonfriends' outcome prices did not respond to information provided. Friends' prices increased with almost everything the seller said. Trust had no effect. While forces other than relationships may constrain actual outcome prices, social context may alter the perception and value of information.

#### 20

#### Robert M. Hamm, University of Colorado

Influence of Information Arrival Time on Judgments of Probability and Relative Importance

Tolcott and colleagues found that impressions of a military situation formed during initial presentation are relatively impervious to change following late-arriving information. This study looked at the effects of receiving the same information early or late when reading about a military situation, upon (a) the judged probability that the commander's plan would succeed, and (b) judgments of the relative importance of various situational factors (including the factors whose information was presented early or late).

David A. Harrison, University of Texas at Arlington

# Exploring the Utility of Time

Although ignored in most research, time is a valued commodity in many decisions. The utility of time, however, is difficult to estimate because of its lack of fungibility, divisibility, or exchangeability. In this paper, I construe time commodities as "containers" for activities. I then express the utility of a portion of time as a general function of the utility of salient activities performable "inside" that time. From this general function, I derive testable propositions about truly *behavioral* decisions about time.

#### 22

Nigel Harvey, University College London

#### Can You Pretend to Make Decisions Like Your Opponents Would?

A scenario described how an opinion poll could be manipulated by respondents to threaten a political party's prospects. Normally, people supporting this party but pretending to oppose it are as likely to say they would manipulate the poll as people actually opposing it. However, at a time of heightened political awareness, they were only half as likely to say they would do so. Their ability to pretend to be their opponents had broken down.

#### 23

Vicky Heiman-Hoffman, University of Pittsburgh

The Effect of Prior Expectations on Accuracy of Covariation Judgments

An experiment was conducted in which subjects judged covariation in two contexts—one where they had prior expectations and one where they did not. Covariation judgments were biased in the direction of subjects' expectations even when they were presented with data exhibiting the *opposite* relationship. This bias was not present when subjects with prior expectations first performed a judgment task that presented them with the same pattern of data for a context in which they did not have expectations.

#### 24

Julie R. Irwin, University of Colorado Paul Slovic and Sarah Lichtenstein, Decision Research Gary H. McClelland, University of Colorado

Commodity-Type Preference Reversals: Is Willingness to Pay a Good Measure of Environmental Values?

Two studies compared willingness to pay (WTP) values to choices among an environmental situation and two everyday market commodities. The first study showed that, while there was overall preference for the environmental good, there was significantly more relative preference for the environmental good over the two market goods when subjects were making choices than when they were providing WTP values. The second study eliminated the overall preference for the environmental good, thereby considerably increasing the number of preference reversals. The second study also asked subjects in the choice condition to choose among the market commodities, allowing for confirmation of the hypothesis that preferences among the market theory" (Tversky, Sattath, & Slovic, 1988) as well as environmental valuation policy are discussed.

Alice M. Isen, Cornell University Andrew S. Rosenzweig, University of Michigan Medical School Mark J. Young, Henry Ford Medical Center

#### Influence of Positive Affect on Clinical Problem Solving

This study investigated the influence of positive affect, induced by report of success on an anagram task, on medical decision making among third year medical students. The subjects were asked to decide which one of 6 hypothetical patients, each of whom had a solitary pulmonary nodule, was most likely to have lung cancer. Protocol analyses indicated that the positive-affect and control groups did not differ in tendency to make a correct choice, but that subjects in the positive-affect condition were significantly earlier in identifying the choice. These subjects were also significantly more likely to go beyond the assigned task, trying to think about the diagnoses of the other patients, even though that task was not assigned. The positive-affect subjects also showed reliably more evidence of configural or integrative consideration of the material, and there was significantly less evidence of confusion or disorganization in their protocols than in those of controls.

# 26

Eric J. Johnson and Gretchen B. Chapman, University of Pennsylvania

# Anchoring and Adjustment: Uncertainty and Extremity Lead to Insufficiency

Anchoring and adjustment is an oft-discussed mechanism underlying many judgmental biases. We know little, however, about its underlying causes. We conducted two experiments isolating some characteristics which might help identify an anchoring and adjustment process. These experiments address two questions: Does the degree of anchoring change as anchors become more extreme? Is anchoring similar for items differing in value uncertainty? We use these results to develop and test models of the causes of anchoring.

# 27

Nancy L. Johnson and J. Frank Yates, University of Michigan

#### Is a Bad Theory Better Than No Theory at All?

This research examined the effects on covariation judgments of expectations that were consistent or inconsistent with actual covariation data. Results showed that judgments were biased in the direction of the expectation. Subjects for whom variables were labelled simply "X" and "Y" (and hence had no expectations) could not discriminate different levels of actual covariation strength. However, subjects with expectations—even incorrect ones—could.

# 28

#### Richard D. Johnson, G. Douglas Olsen, and Jordan J. Louviere University of Alberta

#### Robustness of Judgments and Choices for Different Presentation Formats

Cognitive processes underlying judgment and choice are explored through manipulation of factors such as attribute and profile order, practice trials, paragraph versus list, and simultaneous versus sequential presentation. Judgments are more robust than choices across different orderings of profiles; judgments and choices were affected in different ways by manipulation of attribute order and paragraph/list presentation; and practice does not affect the responses or the robustness of the tasks across presentation factors. Implications for theory and research practice are discussed.

Steven K. Jones, Kristine Taylor, and Deborah Frisch, University of Oregon

#### Processes Involved in the Construction of Probability Judgments

Bayesian probability theory assumes that judgments based on relative frequencies can be treated the same as those based on single cases. Gigerenzer (1991) has demonstrated that people reason differently in these two types of judgment tasks, and further, that frequency judgments are more likely to conform to the rules of probability theory. We provide additional evidence that people employ different processes for probability assessments of frequencies versus single cases. However, our results suggest that both processes are susceptible to systematic biases.

#### 30

Cynthia A. Joyner, Ohio University

#### Debiasing Group Decision-Making Overconfidence with Devil's Advocacy

Devil's advocacy was used to prevent group decision-making overconfidence. All subjects watched a job candidate's videotaped interview, predicted candidates' responses to job related situations, then gave confidence assessments about predictions. Control subjects, whose discussions contained no devil's advocate showed overconfidence on predictions made before and after discussion, and even higher overconfidence during discussion. Experimental subjects were overconfident on predictions made before and after discussion but significantly less overconfident on predictions discussed with devil's advocates.

#### 31

Lynda M. Kilbourne and Ramona L. Paetzold, Texas A & M University

#### Chance Occurrences and Hindsight Bias

We examined whether hindsight bias results more from expectations about what should happen or from chance occurrences. An experiment was conducted in which subjects were to predict the likelihood that four employees would be given merit raises. Only hindsight subjects were provided information about raises. Two employees had behaviors that were causally linked to performance; two employees were in the "chance" condition (behaviors linked to outcomes by "luck"). Results of the experiment will be presented.

#### 32

Sanjiv Kumar, Dale Rude, and David M. Nicol, University of Houston

Cross-Cultural Decision Making: Theoretical Frameworks and a Research Agenda

Decision-making research has placed little emphasis on the cross-cultural applicability of decision-making concepts and theories. This paper (a) identifies critical dimensions for examining decision making across cultures using theory, concepts, and evidence derived from the cross-cultural literature; (b) offers research propositions pertaining to specific J/DM areas (e.g., prospect theory, heuristics and biases, analytical v. intuitive decision making, and expected utility approaches); and (c) discusses the potential benefits of integrative research for the cross-cultural field as a whole.

Margaret Langford, Sanjiv Kumar, and Kenneth Rediker, University of Houston

#### Decision Making in a Dynamic and Complex Task Environment

Decision-making researchers have encouraged consideration of the impact of dynamic complexity on the judgmental process. We will report results of research investigating the impact of the following dimensions upon decision-making performance: (a) intermittent changes in task conditions, (b) time pressure, (c) changes in number of information cues processed, and (d) changes in assumed task goals. While the first three dimensions have been investigated to various degrees in the J/DM literature, the fourth dimension is a contribution from organizational behavior.

# 34

Harvey Langholtz, United Nations Charles Gettys and Bobbie Foote, University of Oklahoma

#### Resource-Allocation Behavior When Gains and Losses are Possible

Individuals and societies are facing hard decisions about the allocation of constrained resources, and resource-allocation behavior has recently received increasing attention in the decision theory literature. In this paper, we address some of the questions raised in past research: Do subjects plan in anticipation of possible losses? Is there an initial tendency to schedule resources equally even if the optimal solution requires unequal scheduling? Do people respond to gains and losses differently? The data suggest that subjects do not allocate their resources in anticipation of probable losses, there is an equal-scheduling tendency, and people perform somewhat better in response to gains than losses.

# 35

Macchi Laura, University of Milan

#### The Base-Rate Fallacy: Cognitive Heuristics and Role of the Discourse Organization

Considering the importance of some heuristics (i.e., causality, specificity, relevance) proposed in literature (Iversky & Kahneman, 1980; Bar-Hill, 1983), we studied the role of the verbal structure of the problems used in probabilistic reasoning. We hypothesized that some elements of the texts led to a misunderstanding of the request and the specific information. Eight texts taken from the literature have been submitted to eight different groups of Ss (N=50). A Chi-square test evidenced a significant difference (p<0.05) between the responses obtained in control groups and the responses of Ss to which a modified text have been submitted. Results suggest to consider the rules of natural language, toward a better comprehension of the observed bias.

# 36

#### Michael Lawrence, University of New South Wales Peter Ayton, City of London Polytechnic

#### Forecasting in the Presence of an Asymmetric Loss Function

There is considerable experimental evidence that people are good at forecasting underlying trends in time series. However, judgmental estimates of confidence limits around forecasts are typically poor. We speculate this is because forecasting is frequently performed, but estimating confidence intervals is rare. Instead, people may find it simpler to produce "loss adjusted" forecasts which incorporate the forecasters' perception of the loss function. We experimentally investigate the ability to produce loss adjusted forecasts by asking people to forecast time series with asymmetric loss functions. Jonathan Leland, Carnegie Mellon University

# Four-Fold Risk Preferences: Intransitivities and the Preference Reversal Phenomenon

This paper examines the consequences of agents choosing under uncertainty based upon whether prizes and/or probabilities across lotteries appear "similar" in value. Such a heuristic decision rule is shown to imply risk seeking for losses/gains at high/low probabilities and risk aversion for losses/gains at low/high probabilities originally noted by Markowitz (1952) and recently emphasized by Tversky and Kahneman (1990). In choice between members of a lottery triple, similarity judgments imply the type of systematic violations of transitivity observed by Tversky (1969) if agents treat probabilities across alternatives as similar but prizes as dissimilar whereas it implies the type of systematic violations predicted by Loomes and Sudgen's Regret Theory, and hypothesized as responsible for the preference reversal phenomenon, if the opposite is true.

#### 38

Irwin P. Levin, Shu-Fang Kao, and Edward A. Wasserman University of Iowa

Learning Effects and Cell Information Use in Contingency Judgments

Earlier we showed that: (a) Subjects unequally and inappropriately weight different sources of information when judging interevent relations, and (b) source weighting is affected by the subject's a priori hypothesis about the direction of the relation. In a new series of experiments we show that subjects' hypotheses change over repeated trials and that there is a concomitant change in the use of information.

#### 39

#### Joselito C. Lualhati and Janet A. Sniezek, University of Illinois at Urbana-Champaign

Group Performance Forecasting in a Judge-Adviser Social Decision System

A laboratory experiment was conducted to examine how characteristics of the information transfer process within a judge-adviser social decision system may affect the accuracy of performance forecasts and the appropriateness of confidence in judgment. Results showed that inherent in a judge-adviser decision system is a possible two-step debiasing system which led to final forecasts being more realistic (compared to simple statistical aggregation and basic behavioral aggregation techniques), and statements of subjective uncertainty more valid (compared to basic behavioral aggregation techniques).

# 40

Nicholas P. Maxwell, University of Pennsylvania

#### **Reference-Price Preference Reversals**

In three experiments, items were presented in pairs, each of which contained an expensive item (e.g., caviar) and a desirable item (e.g., soda-pop). In 40% of the cases, participants evaluated expensive items more highly than desirable items (both in hypothetical willingness-to-pay reports and in the Becker-DeGroot-Marschak procedure), but chose desirable items (in both hypothetical and actual choices), demonstrating that cash evaluations reflect customary prices as well as utility.

Charles G. McClintock, University of California, Santa Barbara Michael J. Platow, University of Dunnedin Wim G. Liebrand, University of Groningen

Resource Allocation Decision Times as a Function of Value Orientation

The theory of social values assumes individuals differ in the importance they assign to own vs. other's outcomes. Here, we assume and find that when allocating resources to self and other, variations in value are associated with variations in choice response latencies. The source of these decision time differences is empirically sought in the mathematics required to express various values vs. the biasing effects values such as cooperation and competition may exert upon response latencies.

# 42

### Craig R. M. McKenzie, University of Chicago

The Long-Run Accuracy of Heuristics: Covariation Assessment, Bayesian Inference, and Hypothesis Testing

The accuracy of subjects' strategies for covariation assessment, Bayesian inference, and hypothesis testing were examined through computer simulation. All the descriptive strategies performed much better than chance and most performed surprisingly well. Furthermore, subjects appear to cope with the three tasks by assessing the degree to which the data are consistent with the single hypothesis perceived to be of interest instead of comparing all competing hypotheses. This "meta-heuristic" was also quite successful, particularly when there were several competing hypotheses.

# 43

# Mary E. McLaughlin, University of Texas at Arlington

Choice Models of Behavioral Direction Versus Models of Behavioral Intensity

Early models of choice were originally tested and applied to predicting choices from among discrete and mutually exclusive alternatives (e.g., consumer goods, gambles). These models were later adapted to predict allocation of effort to one of a number of *different* tasks, as well as to performance levels of a *single* task. However, choice processes in the latter case (behavioral intensity) differ fundamentally from the former (behavioral direction). These differences are highlighted and linked to suggested model modifications.

# 44

Larry P. Menke, Gary J. Gaeth, Irwin P. Levin, and Goutam Chakraborty University of Iowa

Consumer Information Processing in Judging Product Bundles

The processes used by consumers to evaluate "bundles" composed of different products were investigated. Consumers inspected and evaluated both individual products of varying features and bundles representing combinations of these products. For judgments of quality, evaluations of product bundles followed an *averaging model* of information integration. For judgments of mometary worth, evaluations followed an *adding model*. Within each model, weights assigned to individual products were related to their price and to consumers' product familiarity.

Richard G. Milter, Ohio University Thomas A. Darling and Jeryl L. Mumpower, SUNY at Albany

Effects of Issue Labels on the Efficiency of Negotiated Agreements

A study was conducted to determine whether issue labels—the names of the bargaining issues and their associated substantive context—would influence negotiators' choice of a strategy for reaching agreement, and, thus, the likelihood that they would achieve an efficient settlement. It was found that for tasks with identical formal characteristics (i.e., identical payoff tables, etc.), negotiators were more likely to logroll, and therefore to reach efficient settlements, for certain issue labels than for others.

# 46

Deborah J. Mitchell, Temple University

#### Uses and Effects of Imagery in Individual Decision Making

Within the decision-making literature, the roles of imagination and scenario generation in prediction, evidence evaluation, and assessments of causality have been highlighted. However, there has been little if any examination of the role of imagery in the formation of *preferences*. Two experiments addressed this issue. Experiment 1 investigated the effects of imagery on information search, given different task goals. Experiment 2 focused on how imagery may affect the outputs of decision-making, both in terms of preferences and the resulting memory representations of decision alternatives.

# 47

Ignacio Montero and Orfelio G. León, Universidad Autónoma de Madrid

Risk Seeking and Achievement Motivation

This work tries to explore the relevance of achievement motivation like a dispositional variable for explaining decision making under risk. Starting from SP/A, Lopes's theory and the classic theory of achievement motivation were carried out in two studies. Results from the first one showed a significant linear relationship between Security-Potentiality and Achievement Motivation. Results from the second showed an interaction among Achievement Motivation and the two factors (Security-Potentiality and Aspiration Level) of Lopes's theory.

# 48

Douglas A. Moore and Lucian Smith, Temple University Van Johnson, University of Northern Illinois

Choice Among Decision Aids: A Strategy to Increase Usage

In spite of increased accuracy, numerous studies have demonstrated a reluctance to use decision aids. An experiment was conducted to test the hypothesis that reactance to a perceived lack of choice when a decision aid is used reduces usage. Forty subjects were asked to select the baseball MVP for thirty league-years. Half were offered a single decision aid and half were offered a choice of aids. Use of aids increased 369% in the choice condition.

#### Donald V. Moser, University of Pittsburgh

#### Does Memory Affect Judgment?

Independence of memory and judgment has been offered as evidence of on-line judgment formation. I argue that such evidence is questionable if it was obtained using recall of raw input data as the memory measure. Because a self-generated measure captures the contents of memory at the time of judgment better than traditional recall measures, a self-generated measure is more likely to lead to evidence of a memory-judgment relationship. In an experiment directly comparing the two measures, a self-generated measure led to evidence of a memory-judgment relationship, while no such relationship was found for the traditional recall measure.

# 50

In Jae Myung, Costa M. Colbert, and William B. Levy, University of Virginia

# A Neural Network Theory of Probability Inference

A neural network theory of probability inference inspired by the properties of neurons is proposed. It is assumed that a neuron can create a representation of probability in an analog fashion. The theory describes how certain optimal computations (i.e., Bayes rule and maximum likelihood estimation) can be implemented at the neuronal level using fundamental aspects of neuronal computation such as the pairwise synaptic connection, the nonlinear threshold activation function, and neurally plausible synaptic modification rules.

# 51

David M. Nicol, Dale Rude, and Sanjiv Kumar, University of Houston

#### Is J/DM Research Culturally Constrained?

J/DM research addressing cross-cultural considerations is sparse. Despite findings which counter the universality of decision-making behavior, little has been done to assess theoretical implications. Generally, J/DM theory and research reflect a U.S. cultural bias. Perceptions of cultural similarity and belief in cultural convergence have impeded identification of cultural differences in decision making. Review of existing research demonstrates the importance of understanding cultural differences and illustrates the extensive research opportunities that exist.

#### 52

#### Orlando J. Olivares, Texas A & M University John E. Sawyer, University of Delaware

#### The Effects of Choice and Cue on Confidence in Judgments in Difficult and Easy Tasks

The present study examined the effects of volitional choice and cue on confidence in both difficult and easy tasks. Although overconfidence is a pervasive finding in difficult judgment tasks, very little research has been conducted with easy tasks. While research suggests underconfidence, subjects in both difficult and easy tasks were *overconfident*. Percent correct was approximately 60 and 80 percent, respectively. There was no effect of volitional choice in either task condition. Cueing was found to increase *overconfidence* and exacerbate calibration, in both difficult and easy tasks. Practical implications and suggestions for further research are addressed.

# Lisa Ordóñez and Barbara Mellers, UC Berkeley

Equality-Efficiency Tradeoffs: Differences Between Fairness and Preference Judgment

We investigated whether subjects make equality-efficiency tradeoffs in fairness and preference judgments for hypothetical societies. Societies were represented as bivariate scatterplots of individual contributions and rewards. Properties of the societies were manipulated to capture different aspects of equality and efficiency. The majority of subjects appeared to tradeoff between overall wealth, percentage of members below the poverty line and variability in wealth, although tradeoffs were quite different for preference and fairness judgments.

# 54

Scott Plous and Matthew Badger, Wesleyan University

A Comparison of Three Practical Techniques for Reducing Overconfidence

We compare the effectiveness of three ways to reduce overconfidence in general knowledge judgments: (a) instructions to reduce confidence ratings by 20 percent of the amount they exceed zero confidence, or to double the range of 90+ percent confidence intervals; (b) use of an actuarial "overconfidence table" to translate intuitive estimates into final estimates; and (c) merging estimates from two independent judges such that the lowest confidence rating, or the highest and lowest interval boundaries, represent the final judgment. These strategies (and a no-strategy control) are compared in an initial testing and a one-month follow-up.

#### 55

Richard E. Potter and Lee Roy Beach, University of Arizona

Decision Making When Acceptable Options Become Unavailable

This study examined what decision makers do when, after screening out unacceptable options in preparation for making a choice from among the acceptable survivors, they find that all of the survivors have become unavailable and that no new options are forthcoming. Subjects were presented options in the form of rooms to rent and required to screen them to prepare a "short list" from which a choice could be made. They also rated the importance of the rooms' characteristics. Then they were told that the rooms on the short list all had been rented, and that no new rooms had become available so they would have to create a new short list from among the previously rejected rooms. Then they re-screened the rejected options and re-rated the importance of the characteristics of the rooms. It was found that nearly 90% of the subjects would prefer to begin again with new options rather than re-screen rejected options. It also was found that when forced to re-screen rejected options, subjects reduced their ratings of the importance of the options' characteristics, apparently in an effort to compensate, at least in part, for having to select options that, only moments before, had been regarded as unacceptable. Efforts to discourage ratings reductions proved futile. Over 200 subjects participated in the research described above, and the drop in ratings of criterion importance are very consistent and robust, usually on the order of 15 percent (although sometimes as high as 30 percent). Follow up studies examined the effects of delaying the re-rating of criterion importance by one hour and by 24 hours. Results show that the tendency to reduce ratings of criterion importance when desired options become unavailable is not significantly diminished over these time periods.

# Paul C. Price and J. Frank Yates, University of Michigan

#### An "Illusion of Control" in Contingency Judgment

Subjects judged the degree of contingency between two statistically independent, binary variables. Those who attempted to predict one variable from the other were more likely to report the existence of a non-null contingency than were subjects who did not make such predictions. This effect is possibly another manifestation of the "illusion of control," or it may reflect an influence of making predictions on subjects' memory for the frequencies of particular variable combinations.

# 57

Kenneth J. Rediker, University of Houston Terence R. Mitchell, University of Washington Lee Roy Beach, University of Arizona Donald W. Beard, University of Washington

#### The Influence of Strength of Belief Structure on Decision Processes

The influence of belief structure on selected aspects of the decision making process was studied experimentally in both individual and group contexts. Strong belief structures result in less search for information on alternatives incompatible with the belief structure when compared to a weak belief structure. Subjects in the strong belief structure condition indicate less doubt, time, difficulty, conflict with the decision; and indicate less need for change in prior strategies when compared to subjects in the weak belief structure condition.

# 58

Barbara A. Reilly, Clemson University Michael E. Doherty, Bowling Green State University

#### Teaching Brunswikian Theory: The Use of the Lens Model in a JDM Class Exercise

A classroom exercise was developed to demonstrate the use of the lens model to upper-level undergraduates or graduate students enrolled in a JDM course. The exercise consists of modeling a person's decision behavior of choosing his or her companion if forced to live forever on a desert island with the same companion. The students participate in all aspects of the process: choosing attributes and levels, developing the profiles, rating the companions, conducting analyses, and writing the results. This exercise is very useful for demonstrating configural and curvilinear cue usage. Examples will be given.

#### 59

Richard D. Rennie, University of Regina Richard D. Johnson, University of Alberta

#### Anchoring-and-Adjustment in Partial Lists of Possible Causes

Cognitive processes underlying the omission effect in partial lists of possible causes (e.g., Fischhoff, Slovic, & Lichtenstein, 1978) are examined in four experiments. Results are contrary to predictions based on output interference (e.g., Hoch, 1984) and two conceptions of availability—simulation of alternatives and ease of recall. Consistent support is obtained for the hypothesis that subjects anchor on a probability that corresponds to the reciprocal of the list length, and insufficiently adjust from that anchor to estimate likelihoods of individual causes.

J. Carlos Rivero, George Washington University

#### The Dynamic Nature of Decision Strategy Properties

Recent advances in the measurement of decision strategy properties tend to ignore the dynamic nature of *subjective* effort and accuracy. This study examined changes in the experienced effort and estimated accuracy associated with a decision strategy for 100 subjects performing a sequential multiattribute choice task. Results indicate changes in experienced effort and estimated accuracy over time for those decision strategies employed as well as changes in the anticipated effort and accuracy of strategies in the decision maker's repertoire but not used.

# 61

Sandra L. Schneider and Tracy L. Blankenship, University of South Florida

Prediction Ability: The Impact of Skill Change and Random Error

Prediction ability was examined in stationary situations where the regression-to-the-mean principle applies and in dynamic situations where skill changes prevent its useful application. In stationary situations, subjects' predictions are highly accurate provided they are given experience and a rich context. In dynamic situations, prediction accuracy generally varies with the amount of random error but not with the type of skill change. Overall, subjects rival and sometimes surpass the accuracy of some common statistical predictors.

# 62

Sandra L. Schneider and Linda C. Eble, University of South Florida

Risky Choice Depends on More than Frame

The average expectation (poor, mid, or good), outcome extremeness (high or low variability), and probability (25%, 50%, or 75%) of risky options modify the typically-cited framing effect of risk aversion in the positive frame and risk seeking in the negative frame. Low variability and good expected values are associated with decreased risk aversion in both domains. Analyses provide indirect support for SP/A theory (Lopes, 1987) and cast doubt on prospect theory (Kahneman & Tversky, 1979).

# 63

Maurice Schweitzer and John Hershey, University of Pennsylvania

Disentangling Status-Quo and Omission Effects: An Experimental Analysis

The status-quo bias as described by Samuelson and Zeckhauser decomposes into two primary effects—an exaggerated preference for the current (or previous) state of affairs and an exaggerated preference for inaction. We describe an experiment designed to disentangle these effects. Analysis of results shows that both effects can occur, they appear to be additive, and subjects exhibit these effects unknowingly. The relation of these results to loss aversion, ambiguity effects, and regret effects is discussed.

# Zur Shapira, New York University

Judgmental Errors, Incentives and Risk Taking in Managerial Decision Making

In making investment decisions on a risky project, a manager may commit a type I error (accepting a "bad" project) or a type II error (rejecting a "good" project). These judgmental errors are influenced by the incentives and penalties that the manager is likely to receive based on the outcomes of the decision. This paper presents a model of risk taking based on judgmental errors and incentives. The model is developed for the conventional case assuming risk aversion. It is elaborated on to include elements of risky choice models that assume that people behave in a risk averse manner for positive outcomes and risk seeking for negative outcomes. Empirical data collected from hi-tech firms is used to illustrate the magnitude of the phenomenon as well as some of the characteristics of incentive contracts.

# 65

Kip Smith and Paul E. Johnson, University of Minnesota

#### Decision Making Under Time Pressure

Time pressure is a ubiquitous source of stress that poses two problems: What to attend to? and What to do about it? This research investigates the methods for solving these problems invoked by individuals adapted to time pressure: foreign exchange traders. In Experiment 1, traders engage a commercial simulation of the foreign exchange market. Analyses of protocols and indices of cognitive effort inform development of a model that simulates their methods for problem solving under time pressure. A second experiment tests the model's predictions on a second set of tasks.

# 66

Janet A. Sniezek and Timothy Buckley, University of Illinois at Urbana-Champaign Scott Seibert, Cornell University

# Correlates of Bias in Sales Performance Forecasting

Managers of 30 divisions of a multi-national organization provided various assessments of their forecasting performance accuracy and confidence. The correlates of intentional bias are identified across various types of divisions. The data suggest that many forecasters are motivated by political considerations and this motivation is exacerbated when environmental uncertainty increases. Remedial steps to reduce such bias are suggested.

#### 67

Mark Stasson and William Hawkes, Virginia Commonwealth University

Conformity of Member Judgmental Strategies in a Group Performance Context

Subjects predicted classroom performance of a set of stimuli (profiles of college students) based on the values of four cues. Subjects worked alone in phase 1, either alone or in a group in phase 2, and alone in phase 3 (on a different stimuli set). Judgmental strategies (weightings of cues) were obtained for phases 1 and 3. The judgmental strategies of group members converged significantly over time, while strategies for quasi-groups did not converge.

Mark Stasson, Walter Lakey, William Hawkes, and David Smith Virginia Commonwealth University

Degree of Ambiguity Preference for Prospects with Two Outcomes

We constructed thirty prospects with two possible monetary outcomes, receiving no money with probability 1-p and receiving some amount of money with probability p. Prospects differed in terms of expected value, degree of probability ambiguity, and probability of receiving the better outcome (p). When p was high (.50, .70, or .90), subjects preferred prospects that had unambiguous probabilities to prospect that had ambiguous probabilities. This trend was reversed when p was low (.10 or .30).

#### **69**

Dan M. Stone, University of Illinois David A. Schkade, University of Texas

Attribute Scaling and Explicit Incentives in Multiattribute Choice

In two process tracing experiments, participants made multiattribute choices where the type of scale used to represent attributes and explicit economic incentives for speed and accuracy were manipulated. Attributes were represented using either the same context-independent scale (e.g., 1-10) or individual context-relevant scales (e.g., dollars, seconds). Incentive conditions favored speed over accuracy or the converse. Results showed large effects of scaling on processes and performance, despite explicit incentives. These results are explained within a cognitive costbenefit framework.

# 70

Eric R. Stone and J. Frank Yates, University of Michigan

Risk Displays: The Effectiveness of Analog Presentations

Previous research on display effects of low-probability risks found that professed preventive behavior was greater when adverse outcome rates were described with stick figures than with mere numerical frequencies. Two alternative explanations for the greater impact of stick figure displays were tested: (a) their "personalization" of risk, and (b) their physical analog characterization of risk magnitude. Comparisons entailing displays with asterisks and bar graphs largely supported the latter hypothesis.

71

Fred Switzer, Clemson University David Harrison, University of Texas at Arlington

The Role of Heuristics in Motivation

Judgments are an implicit or explicit part of many major cognitive theories of motivation. Current evidence indicates that heuristics and biases occur in such judgments. Given that linkage and what is currently known about the nature of heuristics, we derive some testable predictions about how these characteristics of judgment processes will be reflected in behavior.

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# Kimberly A. Taylor, University of Pennsylvania

Testing the Competence Hypothesis as Explanation for Decisions under Ambiguity

Heath and Tversky (1991) identified a preference to bet on ambiguous knowledge questions over matched-chance lotteries, especially at high knowledge levels. They propose the competence hypothesis as explanation for this ambiguity-seeking behavior. We replicate their finding, while also identifying a significant minority of subjects who avoid the ambiguous knowledge questions as knowledge increases. Finally, we explicitly test the competence hypothesis predictions for a thributions of credit for a win and blame for a loss.

# 73

Eythan Weg, University of Arizona Rami Zwick, Pennsylvania State University

#### Toward a Settlement of the Fairness Question in Ultimatum Games

It was suggested that modest demands by allocators of ultimatum games are motivated by fairness. We present a fixed cost bargaining framework in which the ultimatum aspect is embedded in an infinite horizon fixed-cost bargaining game with a quit move as a legitimate response. We show that quitting, being an empty threat theoretically, has nonetheless a significant attenuating effect. The fairness argument is invalid since no moderation of demands is seen when the quit move is forbidden.

# 74

Carolynn A. Young and J. Frank Yates, University of Michigan

#### The Effects of Trait Anxiety on Judgment

Individuals high and low on trait anxiety predicted college students' grade point averages on the basis of various items of background information. This situation was potentially threatening in that subjects anticipated receiving feedback about their performance. High trait anxiety subjects provided lower and more variable estimates than low trait anxiety subjects. These findings are discussed in terms of the information processing routines induced by stress.