

ORGANIZING COMMITTEE

Nicolao Bonini (chair) - University of Trento

Constantinos Hadjichristidis, University of Trento

Rob Ranyard - Bolton University, UK

Gaelle Villejoubert - University of Toulouse, France

Elke Weber - Columbia University, USA

LOCAL ORGANIZING COMMITTEE

Nicolao Bonini

Luisa Canal

Fabio Del Missier (University of Trieste)

Michele Graffeo

Constantinos Hadjichristidis

The Host Institutions in Italy

Faculty of Cognitive Sciences, University of Trento

Auditorium "Melotti", Municipality of Rovereto

Website

<http://discof.unitn.it/spudm22/index.jsp>

Dear Colleagues and Friends,

On behalf of the EADM Organizing Committee (Nicolao Bonini, Constantinos Hadjichristidis, Rob Ranyard, Gaelle Villejoubert and Elke Weber) we welcome you to Rovereto for SPUDM 22. It's a great pleasure to host the bi-annual conference run by the European Association of Decision Making again in Italy after thirty-six years.

SPUDM conference has a long tradition and is amongst the most important venues for decision scientists to exchange ideas about the descriptive, normative and prescriptive aspects related to judgment and decision-making.

We would like to thank prof. Davide Bassi (Rector of the University of Trento), prof. Remo Job (Head of the Faculty of Cognitive Sciences) and prof. Fraccaroli (Head of the Department of Cognitive Sciences and Education) for organizational, administrative and financial support. A special thank is due to the Rovereto city administration and, specifically, to the Major (dott. Guglielmo Valduga) and the alderman at the University affairs (dott. Maurizio Tomazzoni). We also thank Cilia Witteman for her patience, and all organizations and associations that sponsored the congress. A special thank to the members of the local organizing committee (Luisa Canal, Fabio Del Missier and Michele Graffeo): Without their help, and that of all other people of the University of Trento who worked hard to assist us, SPUDM 22 could not have been organized properly to welcome you.

I wish you a nice stay, and a productive work.

Nicolao Bonini and Constantinos Hadjichristidis

GUIDELINES FOR SYMPOSIA, PRESENTATIONS, AND POSTERS

General Information. Each presentation room for symposia and parallel sessions will be equipped with a PC (with MS Power Point software) and a projector. To ensure the smooth running of the meeting all speakers should upload their presentations NO LATER THAN 9:00 am ON THE DAY IN WHICH THE PRESENTATION IS SCHEDULED (thus from 8:00 to 9:00 am). To avoid unforeseen problems, we strongly encourage all speakers to have their presentations uploaded and checked well in advance.

Symposia Guidelines. To allow full discussion, workshop presentations should not exceed 15-20 minutes. Conveners are kindly requested to enforce these time limits.

Oral Presentations Guidelines. Presenters will have 15 minutes for their talks followed by 5 minutes for questions and discussion. The last speaker in each paper session is designated as a chairperson. Chairpersons are kindly requested to follow strictly these time limits.

Poster Guidelines. Presenters will be able to place their posters in the basement of Auditorium Melotti, after 8 am on Wednesday, August 26. Each poster will be placed on a panel of size 100 cm (height) by 90 cm (width). Posters may be left on display for the full day of presentation.

Organizational Notes and Computer/Internet Access. For organizational and safety reasons we remind the participants that the access to the conference rooms will be allowed only to individuals showing the conference badge. The badges will be distributed at the registration desk. For the same reasons the participants will have to exhibit the social dinner voucher in order to attend the dinner.

Two PC rooms will be made available to the participants:

Internet Point, Palazzo Istruzione (Ground Floor, Room 3)

Computer Stations, Palazzo Istruzione (Garden Floor, Aula informatica 2) .

Username and password will be required to access the computers. Temporary username/password can be requested at the registration desk.

Conference Office. From Sunday to Thursday, the conference office will be located in the Entrance Hall of the Auditorium Melotti.

CONFERENCE PROGRAM

	Sunday August 23, 2009
14:00- 22:00 Auditorium Melotti, Entrance Hall	REGISTRATION
17:30- 18:00 Auditorium Melotti	OPENING AND WELCOME
18:00- 19:00 Auditorium Melotti	PRESIDENTIAL ADDRESS Ilana Ritov, Hebrew University, Jerusalem, Israel Generosity, with the recipient in mind Chair: Nicolao Bonini
19:00- 21:00	WELCOME BUFFET

Monday August 24, 2009 - Morning				
8:00-9:00 Auditorium Melotti, Entrance Hall	REGISTRATION			
9:00-10:00 Auditorium Melotti	KEYNOTE ADDRESS Eric Johnson, Columbia University, USA Constructing preferences by queries: How memory influences what we want Chair: Elke Weber			
10:00-10:30 Cognitive Science Faculty Garden	COFFEE BREAK			
10:30-12:30 Palazzo Istruzione	PARALLEL SESSIONS			
	THEORETICAL PERSPECTIVES	EMOTION IN RISKY DECISIONS - REGRET	UNCERTAINTY PROBABILITY	CHOICE
	<i>Aula Magna</i> Chair: Robin Hogarth	<i>Room 4</i> Chair: R. Di Schiena	<i>Room 6</i> Chair: David Budescu	<i>Room 7</i> Chair: Leah Borovoi
	Neil Stewart Timothy Pleskac Christopher Olivola Stefan M. Herzog Robin Hogarth	T. M. Schlösser Joshua Weller Thorsten Pachur Geir Kirkebøen M. Schulte- Mecklenbeck R. Di Schiena	Craig Fox Marie Juanchich W. Gaissmaier James Liley K. Domurat David Budescu	Joanna Sokolowska Eduard Brandstätter Sebastian Hafenbrädl Robin Hau Christoph Ungemach Leah Borovoi
12:30-13:30 RISTO3	LUNCH			

Monday August 24, 2009 – Afternoon, Evening				
13:30-15:30 Palazzo Istruzione	PARALLEL SESSIONS			
	EMOTION IN DECISIONS: MORAL ASPECTS & HAPPINESS	TIME AND DECISION	PARADOXES ILLUSIONS	SOCIAL ASPECTS IN JDM: FAIRNESS, ALTRUISM, COOPERATION AND COMPETITION
	<i>Aula Magna</i> Chair: Amelie Gamble	<i>Room 4</i> Chair: Claudia Niza	<i>Room 6</i> Chair: Maya Bar-Hillel	<i>Room 7</i> Chair: Shoham Choshen-Hillel
	Daniel Västfjäll Stephan Dickert Ilona De Hooge A. Peter McGraw Amelie Gamble	Ellen Evers Christopher Olivola Luigi Mittone Dolchai La-ornual Stefan Zeisberger Claudia Niza	Karl H. Teigen Jeffrey Zemla M. Willemsen Katya Tentori Patric Andersson Maya Bar-Hillel	Hannes Koppel Ilaria Castelli Davide Massaro Shaul Shalvi Piers Fleming Shoham Choshen-Hillel
15:30-16:00 Cognitive Science Faculty Garden	COFFEE BREAK			
16:00-18:00 Palazzo Istruzione	PARALLEL SESSIONS			
	NEURAL PROCESSES IN JDM	SOCIAL ASPECTS IN JDM: GROUPS AND INDIVIDUAL DIFFERENCES	LOSSES AND LOSS AVERSION	JUDGMENTS AND INTUITION
	<i>Aula Magna</i> Chair: Claudio Lucchiari	<i>Room 4</i> Chair: B. Scheibehenne	<i>Room 6</i> Chair: Eldad Yechiam	<i>Room 7</i> Chair: Klaus Fiedler
	Bernd Figner Franz Heukamp I. Triasih Kurniawan Elena Reutskaja Claudio Lucchiari	Yanan Feng Chris M. White Barry Sopher Boris Maciejovsky T. Kobbeltvedt B. Scheibehenne	David Schkade Eyal Ert Enrico Rubaltelli Guy Hochman Stefan Zeisberger Eldad Yechiam	Gaëlle Villejoubert Renata Suter Sabine Czenna Yoel Inbar Jiaying Zhao Klaus Fiedler

Tuesday August 25, 2009 - Morning				
9:00-10:00 Auditorium Melotti	KEYNOTE ADDRESS Tilman Betsch, Erfurt University, Germany Automaticity in decision making Chair: Constantinos Hadjichristidis			
10:00-10:30 Cognitive Science Faculty Garden	COFFEE BREAK			
10:30-12:30 Palazzo Istruzione	PARALLEL SYMPOSIA			
	PROCESS TRACING METHODS: COMPARISONS AND EMPIRICAL RESULTS <i>Aula Magna</i> Convenors: Ola Svenson & Rob Ranyard Discussant: Ola Svenson	PSYCHOLOGICAL RESPONSE TO TERRORISM THREAT <i>Room 4</i> Convenor: David J. Weiss Discussant: Detlof von Winterfeldt	CHOICE MODELING RECONSIDERED - COMPARATIVE HEURISTICS <i>Room 6</i> Convenor: Jonathan Leland Discussant: Valerie Reyna	FORESTS, HOSPITALS & NEEDY GROUPS: PROCESSES OF EVALUATION <i>Room 7</i> Convenor: Ilana Ritov Discussant: David Schkade
	Oswald Huber Olga Kostopoulou Bernd Figner Elke Weber	W. Bruine de Bruin Barbara Fasolo Richard John Thomas Baumert	Jonathan Leland Ralph Hertwig	Ellen Peters Tehila Kogut Nicolao Bonini Ilana Ritov
12:30-13:30 RISTO3	LUNCH			

Tuesday August 25, 2009 – Afternoon, Evening				
13:30-15:30 Palazzo Istruzione	PARALLEL SESSIONS			
	CONSUMER JDM	VISUAL PROCESSING, ATTENTION AND DECISION	ECONOMIC JDM	MEDICAL/ CLINICAL JDM
	<i>Aula Magna</i> Chair: Michaela Huber	<i>Room 4</i> Chair: Yoella Bereby-Meyer	<i>Room 6</i> Chair: Stephan Tontrup	<i>Room 7</i> Chair: Rachel Davis
	Gulden Ulkumen Shawn Curley Huiyi Lo Fergus Bolger B. Kamleitner Michaela Huber	Vivianne Visschers Nina Horstmann Frank Renkewitz Tal Shavit Petko Kusev Yoella Bereby-Meyer	W. Bruine de Bruin B. Kastlunger Darren Duxbury Barbara Summers Stephan Tontrup	Cilia Witteman Cilia Witteman Mirjam Jenny Helena Szrek Rachel Davis
15:30-16:00 Cognitive Science Faculty Garden	COFFEE BREAK			
16:00-17:00 Auditorium Melotti	EADM GENERAL ASSEMBLY			
17:00-19:00 Palazzo Istruzione	PARALLEL SESSIONS			
	RISK AND RISKY CHOICE	FINANCIAL JDM	CAUSALITY, CONFIRMATION AND DECISION MAKING	SOCIAL ASPECTS IN JDM
	<i>Aula Magna</i> Chair: Peter Ayton	<i>Room 4</i> Chair: Doron Sonsino	<i>Room 6</i> Chair: T. Mastropasqua	<i>Room 7</i> Chair: Matthew McCarter
	Andreas Glöckner Andrea Taylor Mandeep Dhani Raanan Lipshitz Cornelia Betsch Peter Ayton	Christine Kaufmann Ning Du Elisabet Hvalgren Helen Pushkarskaya Marco Monti Doron Sonsino	Bénédicte Bes David Lagnado York Hagmayer Odilo W. Huber Jennifer Murray T. Mastropasqua	Norma Schmitt Natalia Karelai Tomasz Zaleskiewicz Anna Kholmer Gilly Koritzky Matthew McCarter

Wednesday August 26, 2009				
9:00-10:00 Auditorium Melotti	KEYNOTE ADDRESS Alan Sanfey, University of Arizona, USA Fairness, trust, and reciprocity in social decision-making Chair: Rob Ranyard			
10:00-10:30 Cognitive Science Faculty Garden	COFFEE BREAK			
10:30-12:30 Palazzo Istruzione	PARALLEL SESSIONS			
	MEMORY AND DECISION	JUDGMENT CALIBRATION – JUDGMENT – ENDOWMENT	PRESENTATION AND INFORMATION IN DECISIONS	PLANNING, ADVICE AND POLICY
	<i>Aula Magna</i> Chair: Erica Yu	<i>Room 4</i> Chair: Serge Blondel	<i>Room 6</i> Chair: Neda Kerimi	<i>Room 7</i> Chair: David Comerford
	Arndt Brüder Rüdiger F. Pohl Julian Marewski Ido Erev Edward Cokely Erica Yu	Marc Jekel David Mandel Christoph Merkle Florian Kutzner Yuval Rottenstreich Serge Blondel	Michael Liersch K. Yamagishi Carlotta Zorzi Zur Shapira Adi Amit Neda Kerimi	Eliran Halali C. Hadjichristidis Ronit Montal Jan K. Woike David Comerford
12:30-13:30 RISTO3	LUNCH			
13:30-15:00 Auditorium Melotti, Floor -1	POSTER SESSION			
15:00-17:00 Palazzo Istruzione	HALF DAY BREAK European PhD student networking – Room 4			
17:00-19:00 Palazzo Istruzione	ROUND TABLE On DECISIONS, PUBLIC ADMINISTRATION and PUBLIC CHOICES Sponsored and Organized by Mind & Society and Fondazione Rosselli Aula Magna			
20:00-23:00 Under the dome of the Museum of Modern Art	CONFERENCE DINNER			

Thursday August 27, 2009				
9:00-9:45 Auditorium Melotti	DE FINETTI PRIZE TALK: Benjamin Scheibehenne "Many options but few theories – The effect of choice overload" Chair: Pieter Koele			
9:45-10.30 Auditorium Melotti	JANE BEATTIE AWARD TALK: Ellen Peters "Numeracy and an intuitive sense of numbers in decision making" Chair: Robin Hogarth			
10:30-11:00 Cognitive Science Faculty Garden	COFFEE BREAK			
11:00-13:00 Palazzo Istruzione	PARALLEL SYMPOSIA			
	INDIVIDUAL DIFFERENCES IN DECISION MAKING COMPETENCE <i>Aula Magna</i> Convenors: Fabio Del Missier W. Bruine de Bruin Discussant: Irwin Levin	OTHER PEOPLE'S DECISIONS: UNDERSTANDING AND IMPROVING THEM <i>Room 4</i> Convenors: Tim Rakow Nigel Harvey Discussant: Elke Weber	IMPRECISE PERCEPTIONS AND SIMILARITY JUDGMENTS IN DECISIONS <i>Room 6</i> Convenor: Jonathan Leland Discussant: Ellen Peters	UNDERSTANDING PROCESS FAIRNESS FROM DIFFERENT ANGLES <i>Room 7</i> Convenor: Stephan Tontrup Discussant: Gary Bolton
	Irwin Levin Fabio Del Missier W. Bruine de Bruin Andrew Parker	David Faro Nigel Harvey Tim Rakow Ilan Yaniv	Valerie Reyna Daniel Read Jonathan Leland D. N. Martinez	Stephan Tontrup Irina Cojuharenco Yuval Feldman Stefan Trautmann
13:00-14:00 RISTO3	LUNCH			
14:00-16:00 Auditorium Melotti	PANEL DISCUSSION Automatic and controlled judgment and decision-making Chair: Cornelia Betsch Panelists: Eric Johnson, Tilmann Betsch, Alan Sanfey, Ellen Peters and Andreas Glöckner			

ORAL PRESENTATIONS

<p style="text-align: center;">Monday August 24 10:30-12:30 Palazzo Istruzione</p>			
THEORETICAL PERSPECTIVES	EMOTION IN RISKY DECISIONS / REGRET	UNCERTAINTY - PROBABILITY	CHOICE
<p><i>Aula Magna</i> Chair: Robin Hogarth</p>	<p><i>Room 4</i> Chair: Raffaella Di Schiena</p>	<p><i>Room 6</i> Chair: David Budescu</p>	<p><i>Room 7</i> Chair: Leah Borovoi</p>
<p>1) Abandon utility, weighting, and discounting functions Neil Stewart Stian Reimers</p>	<p>1) What a feeling? Emotions in risky decisions Thomas M. Schlösser David Dunning Detlef Fetchenhauer</p>	<p>1) Internal versus external modes of expressing uncertainty Craig Fox</p>	<p>1) Information search patterns in risk judgment and in choices Joanna Sokolowska Agata Michalaszek Jolanta Rujner</p>
<p>2) A diffusion theory model of choice, resp. time, & confidence Timothy Pleskac Jerome Busemeyer</p>	<p>2) Negative emotionality moderates age-risk taking link Joshua Weller Natalie Denburg</p>	<p>2) Verbal probability choice, a story of contrast? Marie Juanchich Karl Halvor Teigen Gaëlle Villejoubert</p>	<p>2) Choosing heuristics in choice under uncertainty Eduard Brandstätter Anton Kühberger Manuela Gussmack</p>
<p>3) A Cognitive-psycho-physical theory of human life valuation Christopher Olivola Namika Sagara</p>	<p>3) Affect in risky choice Thorsten Pachur Ralph Hertwig Roland Wolkewitz</p>	<p>3) The smart potential behind probability matching Wolfgang Gaissmaier Lael Schooler</p>	<p>3) Choosing how many options to choose from Sebastian Hafenbrädl Ulrich Hoffrage</p>
<p>4) Dialectical bootstrapping: The wisdom of crowds in one mind Stefan M. Herzog Ralph Hertwig</p>	<p>4) Revisions and regret: Reversed decisions increase regret Geir Kirkebøen Erik Vassåsen Karl Halvor Teigen</p>	<p>4) Poker players are aces at probability estimation! James Liley Tim Rakow</p>	<p>4) Why rare events impact people's lives but not their choices Robin Hau Ralph Hertwig</p>
<p>5) Hope springs eternal: The role of chance in risk taking Natalia Karelaia Robin Hogarth</p>	<p>5) Regret in pre- and post-decisional processes M. Schulte-Mecklenbeck Gisela Bohm, Marcel Zeelenberg</p>	<p>5) Determinants of the probability weighting function Katarzyna Domurat</p>	<p>5) One man's trash is another man's treasure: Choice & context Christoph Ungemach Neil Stewart</p>
	<p>6) Rumination and Decision making difficulty in depression Raffaella Di Schiena Olivier Luminet Pierre Philippot</p>	<p>6) Assessing Joint Distributions with Isoprobability Contours David Budescu Ali Abbas Yuhong Gu</p>	<p>6) CLT and Choice between Enriched or Impoverished Options Leah Borovoi Nira Liberman Tal Eyal</p>

Monday August 24

13.30-15.30

Palazzo Istruzione

EMOTION IN DECISIONS: MORAL ASPECTS & HAPPINESS	TIME AND DECISION	PARADOXES - ILLUSIONS	SOCIAL ASPECTS IN JDM: FAIRNESS, ALTRUISM, COOPERATION AND COMPETITION
<i>Aula Magna</i> Chair: Amelie Gamble	<i>Room 4</i> Chair: Claudia Niza	<i>Room 6</i> Chair: Maya Bar-Hillel	<i>Room 7</i> Chair: Shoham Choshen-Hillel
1) The role of affect in donations to victims in need Daniel Västfjäll Ellen Peters Paul Slovic	1) Temporal framing of normative equivalent quantities Ellen Evers Gideon Keren	1) Framing mistakes: Too little is better than too much Karl H. Teigen Mija I.Nikolaisen	1) Unraveling fairness: (Individual) empathy and (social) norms Florian Artinger Filippas Exadaktylos Hannes Koppel Lauri Sääksvuori
2) Mood management and sympathy as predictors of donations Stephan Dickert Namika Sagara Paul Slovic	2) Patience auctions and the impact of time vs. money framing Christopher Olivola Stephanie Wang	2) Illusion of political sophistication Jeffrey Zemla Adam Alter Daniel Oppenheimer	2) Does fairness matter more than theory of mind? Ilaria Castelli Davide Massaro Alan Sanfey Antonella Marchetti
3) Moral emotions: Not so social when another repairs for you Iloa De Hooge	3) Time and the relative importance of probability and outcome Luigi Mittone Lucia Savadori	3) Information processes underlying the MPG-illusion Martijn Willemsen	3) Are children consequentialist? Evidences from the ultimatum game Davide Massaro Ilaria Castelli, Cristina Bicchieri, Antonella Marchetti
4) Wrong but funny: Moral violations can elicit mixed emotions. A. Peter McGraw Caleb Warren	4) Effect of temporal distance on attitudes toward ambiguity Dolchai La-ornual Selcuk Onay Ayse Onculer	4) Explaining the conjunction fallacy Katya Tentori Vincenzo Crupi Selena Russo	4) Avoiding negotiations - When want and should collide Shaul Shalvi Michel Handgraaf Carsten de Dreu
5) Affect, happiness and cognitive subjective well-being Amelie Gamble	5) Are Prospect Theory Preferences Stable Over Time? Dennis Vrecko, Stefan Zeisberger	5) Effects of conjunction fallacies in evaluating football bets Patric Andersson Håkan Nilsson	5) Cooperation – social desirability, conformity and altruism Piers Fleming Daniel John Zizzo
	6) Positive and negative affect on intertemporal choice Claudia Niza Barbara Fasolo Daniel Read	6) Wasting Time to Avoid the Appearance of Wasting Money Maya Bar-Hillel Guy Nitsan Zultan Roi	6) Giving Altruistic Advice: Personal Cost and Others' Benefit Shoham Choshen-Hillel Ilan Yaniv

Monday August 24

16:00-18:00

Palazzo Istruzione

NEURAL PROCESSES IN JDM	SOCIAL ASPECTS IN JDM: GROUPS AND INDIVIDUAL DIFF.	LOSSES AND LOSS AVERSION	JUDGMENTS AND INTUITION
<i>Aula Magna</i> Chair: Claudio Lucchiari	<i>Room 4</i> Chair: Benjamin Scheibehenne	<i>Room 6</i> Chair: Eldad Yechiam	<i>Room 7</i> Chair: Klaus Fiedler
1) The neural basis of intertemporal choice: An rTMS study Bernd Figner Daria Knoch, Eric J. Johnson, Amy R. Krosch, Sarah H. Lisanby Ernst Fehr Elke Weber	1) Information sampling in decision making groups Yanan Feng Nicola Bounie Christopher Allinson John Maule	1) Do bipolar scales mask loss aversion? David Schkade Daniel Kahneman Peter McGraw Jeff Larsen	Are representativeness judgments automatic and rapid? Gaëlle Villejoubert
2) An fMRI evaluation of the probability-time tradeoff Franz Heukamp Maite Aznarez-Sanado Maria Fernandez-Seara Francis Loayza Ewa Salamon-Klobut	2) Do groups defer choice more than their members? Chris M. White Sebastian Hafenbrädl Ulrich Hoffrage Nils Reisen Jan K. Woike	2) The boundaries of loss aversion in decisions under risk Eyal Ert Ido Erev	2) Think or blink? Intuition and reasoning in moral judgments. Renata Suter Ralph Hertwig
3) Effort-reward representation in the brain Irma Triasih Kurniawan Ben Seymour Deborah Talmi	3) Information aggregation and communication in group decisions Barry Sopher Richard Lau, Jeffrey Birchby David Anderson	3) Loss aversion: The comparative nature of affective reactions Enrico Rubaltelli Rino Rumiati Paul Slovic	3) Cues used in spontaneous vs. deliberate randomness judgments Sabine Czenna
4) Choice overload in the brain Elena Reutskaja Axel Lindner Rosemarie Nagel Richard A. Andersen Colin Camerer	4) Learning in teams with conflict of interest among members Boris Maciejovsky Matthias Sutter David V. Budescu Patrick Bernau	4) Loss aversion in the eye: The ANS's responses to losses Guy Hochman Eldad Yechiam	4) Lay intuitions about intuitive insight and intuitive choice Yoel Inbar Tom Gilovich
5) Subcortical correlates of gambling behavior Claudio Lucchiari Manuela Fumagalli Sara Marceglia	5) Sharing resources: Social distance and individual difference Therese Kobbeltvedt Gaute Torsvik Sigve Tjøtta	5) Myopic loss probability aversion Stefan Zeisberger Thomas Langer Martin Weber	5) Beyond binary choice in the study of judgment heuristics Jiaying Zhao Daniel Oppenheimer
	6) Preference prediction accuracy in couples decreases with age Benjamin Scheibehenne Jutta Mata Peter Todd	6) Losses induce consistency in human choice behavior Eldad Yechiam	6) Regressiveness and subadditivity of quantitative judgments Klaus Fiedler Christian Unkelbach

Abandon utility, weighting, and discounting functions

Neil Stewart

University of Warwick

Stian Reimers

University College London

Central to our economic behaviour are the attributes money, probability, and time. The theories of decision under risk and delay generally assume that we transform money, probability, and delay into their subjective equivalents, and then integrate information across these equivalents by multiplying. Here we argue that this transformation is not stable. We argue that although it is possible to derive utility functions, subjective probability functions, and temporal discounting functions from behavioural data (e.g., a series of choices) these psychoeconomic functions have no psychological reality: There are no look-up tables that convert from real-world attributes to their subjective equivalents. In our experiments we show that by manipulating the distribution of monies, probabilities, and delays in the question set used to elicit psychoeconomic functions we can systematically change their shape. That is, we show that if you ask different questions the subjective values of given monies, probabilities, and delays can be adjusted at the experimenter's will.

A Diffusion Theory model of choice, response time, and confidence

Timothy Pleskac

Michigan State University

Jerome Busemeyer

Indiana University

An indisputable fact of choice and confidence judgments is that they take time to occur. During this talk, we present a diffusion process account of the time course of confidence judgments. The model uses a standard drift diffusion process to account for choice and decision time, but to make a confidence judgment we assume that evidence continues to accumulate after the choice is made. Judges then interrupt the process to categorize the accumulated evidence into a confidence rating. We show that the model can account for several central empirical results regarding choice accuracy, decision time, and confidence ratings, and their complex interactions. Finally, the dynamic nature of the model produces precise testable predictions concerning the accuracy of choice and confidence ratings and the moderating effects of time pressure. In particular, we show that the model specifies the optimal solution for judges giving the fastest choice and confidence rating for a given level of accuracy. Furthermore, by manipulating different levels of time pressure when making choice we

show judges act in a manner consistent with the optimal solution when making a confidence judgment.

A cognitive-psycho-physical theory of human life valuation

Christopher Olivola

Princeton University

Namika Sagara

Decision Research, University of Oregon

Each year, thousands of lives are lost to disasters and armed conflicts. Our reactions to these events depend largely on the extent to which we are moved by the size of their death tolls. The evidence shows that people exhibit a diminishing sensitivity for human life and, equivalently, risk-seeking preferences for decisions involving the loss of lives, but we still do not understand why this occurs. Using Decision by Sampling theory, we provide both a theoretical account of the psychophysics of human life valuation and empirical evidence to support this account. We present three studies, which show that (1) the diminishing sensitivity for human life follows from the distribution of relevant events (e.g., death tolls from disasters) that people generally observe, (2) we can manipulate risk preferences regarding decisions about human life by experimentally altering the distribution of disaster events that people are exposed to, and (3) the varying distributions of disaster events that countries are exposed to predict cross-national differences in decisions about human life, which we find. We discuss the implications of this work for understanding reactions to humanitarian crises.

Dialectical bootstrapping: The wisdom of crowds in one mind

Stefan Herzog & Ralph Hertwig

Faculty of Psychology, University of Basle

The wisdom of crowds in making quantitative judgments is well established. The average estimate of a group is more accurate than a randomly chosen estimate, and is sometimes even the best estimate of a group. Although individuals' estimates may be riddled with errors, averaging them boosts accuracy because errors tend to cancel out across individuals. We propose exploiting the power of aggregation to improve estimates generated by a single person using an approach we call dialectical bootstrapping: Reducing a person's error by averaging his or her first estimate with a second one that harks back to somewhat different knowledge and assumptions or stems from a different estimation strategy. We derive conditions under which one should average two competing, internal estimates instead of choosing between them. We present empirical evidence for accuracy

improvement and that the benefits of dialectical bootstrapping can go beyond mere reliability increases. A single mind can thus partly simulate the wisdom of the crowds.

Hope springs eternal: The role of chance in risk taking

Natalia Karelaia

INSEAD

Robin Hogarth

ICREA & Universitat Pompeu Fabra, Barcelona, Spain

In most naturally occurring situations, success depends on both skill and chance. We contrast experimental market entry decisions where payoffs depend only on skill as opposed to combinations of skill and chance. We find more risk taking with skill and chance than with skill alone, and although there was “excess entry” (i.e., too many participants entered markets), this could not be attributed to overconfidence. Our data support an explanation based on differential attitudes toward chance by those whose self-assessed skills are low and high. Making chance more important induces greater optimism for the former, while the latter maintain a belief that high levels of skill are sufficient to overcome the vagaries of chance.

What a feeling? Emotions in risky decisions

Thomas M. Schlösser

University of Cologne & GESIS - Leibniz Institute for the Social Science

David Dunning

Cornell University

Detlef Fetchenhauer

University of Cologne

The risk-as-feelings hypothesis argues that many risky decisions are not only predicted by anticipated emotions, as most consequentialistic decision-making theories would presume, but that they are influenced also by anticipatory emotions. Anticipatory emotions refer to the visceral feelings people feel as they contemplate an immediate action, whereas anticipated emotions are those people forecast they will feel about possible consequences of a decision. Four studies focused on the role of both types of emotions in decisions under risk and uncertainty. Participants indicated their immediate and anticipated emotions regarding simple non-hypothetical lotteries. Decisions were substantively predicted by immediate emotional states beyond anticipated emotions or the subjective probability attached to outcomes.

Negative emotionality moderates age-risk taking link

Joshua Weller

Decision Research

Natalie Denburg

Department of Neurology, University of Iowa

While recent research has suggested that the ability to make decisions under uncertainty may change as a function of age, the precise mechanisms by which these changes occur are not well understood. The current study aimed to extend findings reported by Denburg et al. (2009) which reported that high levels of neuroticism were significantly associated with less advantageous decision making in older adults, whereas older adults low in neuroticism performed similarly to young adults. In an ongoing study, ninety-one healthy, cognitively intact adults (aged 26-85) have been individually administered the Cups Task, a decision making task which independently assesses risky decision making for decisions to achieve gains and ones to avoid losses, along with a battery of self report questionnaires which assess negative emotionality. Results indicate that individuals high in negative emotionality were more risk averse, especially in the loss domain, even when it is advantageous to take a risk. Our findings are discussed in the context of how individual differences in negative emotionality and chronic stress over the lifespan may impact decision-making.

Affect in Risky Choice

Thorsten Pachur, Ralph Hertwig & Roland Wolkewitz

University of Basel

Rottenstreich and Hsee (2001) asked participants how much money they would be willing to pay to avoid the chance of experiencing an affect-rich consequence (electric shock) or an affect-poor consequence (penalty of \$20). The probability of experiencing the consequences was either 1% or 99%. As it turned out, for affect-poor consequences participants' responses were highly sensitive to the differences in probability, whereas for affect-rich consequences participants gave rather similar responses in the high and low probability conditions. We extended these findings, using a within-subject design to manipulate the amount of affect. This allowed us to test whether affect can lead to preference reversals within a person. Moreover, we tested two possible accounts for the effect: (a) a weighting-function hypothesis, according to which affect leads to a more pronounced S-shaped curvature of the weighting function (Rottenstreich & Hsee, 2001); (b) a probability-neglect hypothesis, according to which affect leads to a neglect of probability information (Sunstein, 2001).

Revisions and regret: Reversed decisions increase regret

Geir Kirkebøen, Erik Vassåsen & Karl Halvor Teigen

University of Oslo

Many real-life decisions involve a time interval between a decision is made and the outcome is revealed. In this pre-outcome period we can often change our mind. In two studies we explored participants' regret in the process of making such reversible decisions. The participants took part in two different economic games, the Ultimatum game (Study 1) and the Trust game (Study 2). In both, they had to decide how much to offer an 'opponent', a computer programmed to respond as people typically do. They could then gain more insight into the game by exploring interactively how people typically respond. Thereafter, half of the participants got the possibility to change their initial offer. The outcomes were designed such that it was always possible to imagine a more profitable outcome. The reported mean preoutcome regret was significantly higher (Study 1) or equal (Study 2) to the post-outcome regret. In both studies those who actually changed their decision reported markedly stronger post-outcome regret, even if they come out with better (Study 1) or equal (Study 2) outcomes, than those who did not change their mind. Changing your mind seems to have a cost even for positive outcomes.

Regret in pre- and post-decisional processes

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Regret is a widely studied phenomenon in the decision making and economics literature. It is common to evaluate regret on a scale after feedback is given in a task. However, the actual processes that lead to regret are mostly ignored. In this research we are interested in how the emotion and the avoidance of the negative effect of the emotion influences our decision processes. The information acquisition before and after a decision is made in a task with potential regret or disappointment will be inspected not only on the outcome level but also on the process level. Participants are first engaged in a 20 minutes artificial grammar learning experiment, then their pre-decisional (experiment 1) and post-decisional information acquisition is recorded using MouselabWeb. We find (and replicate) a pre-decisional pattern that indicates participant's avoidance of information directly implied by regret/disappointment predictions. In the post-decisional phase we find search patterns that closely follow theoretical predictions from regret theory.

Rumination and decision making difficulty in depression

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The present research aims to show that high level of construal rumination causes decision making difficulty in depressive individuals. Latest authors distinguish two modes of rumination: High Level of Construal (HLC: abstract, verbal, analytical and comparative-evaluative) vs. Low Level of Construal (LLC: concrete, imagery, experiential and details-focused), the first being typically associated with a depressive mindset (Trope et al., 2007; Watkins, 2008). In Study 1 self report measures were administered to 174 undergraduates. It was shown that Hypervigilance, Procrastination and Indecision correlated with both depression and dispositional measures of HLC rumination. Partial correlations also revealed that Hypervigilance, Procrastination and Indecision still correlated significantly when controlling for depression. In a second study Ps make choices in 15 fictitious situations, after being assigned either to a HLC condition or to a LLC condition. Time involved in accomplishing the task, perceived difficulty and discomfort are indicators of decision making difficulty. Data from this study are expected to show that HLC rumination increases decision making difficulty and vice versa.

Internal versus external modes of expressing uncertainty

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We show that natural expressions of judgment under uncertainty map onto two distinct modes of thought. INTERNAL mode statements (e.g. "I am 80% sure that...", "I am reasonably confident that...") quantify or qualify EPISTEMIC uncertainty (i.e. uncertainty in the mind of the speaker) whereas EXTERNAL mode statements (e.g., "I believe there is an 80% chance that...", "I think it is very likely that...") quantify or qualify ALEATORY uncertainty (i.e., random factors in the world). Our first two studies suggest that speakers associate internal statements with a feeling of knowing, their own future behaviors, and singular representations of events in the world, whereas they tend to associate external statements with distributional representations of events in the world. Our last three studies show that listeners associate "sure" and "confident" language with singular reasoning,

a feeling of knowing, and uncertainty in the speaker's mind whereas they associate "chance" and "probability" language with distributional reasoning, random events, and uncertainty in the world. They also assign more responsibility to speakers using internal than external mode statements.

Verbal probability choice, a story of contrast?

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This research focuses on what determines speakers' choice of positive and negative probability phrases (e.g., "a chance" vs. "not certain") in a legal context. We argue that choice of phrase to describe an event's probability of occurrence can be determined by its earlier p value in contrast with its current value and not by that current value alone. Three experiments were conducted describing scenarios where profilers communicated a suspect's probability of guilt to the police. In the first study, a probability estimate is revised upwards or downwards. In the second one, the probability estimate of a speaker is higher or lower than that given by a previous speaker. In both cases, participants expected upward trends to lead to positive phrases, whereas downward trends were associated with negative phrases. In a third study, participants had to select probability phrases to characterize two different suspects. No contrast effects were found. We conclude that verbal probability directionality has primarily an argumentative function, where positive phrases are selected when probabilities are contrasted with smaller p values, and negative, when contrasted with higher p values.

The smart potential behind probability matching

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Probability matching is a classic choice anomaly that has been studied extensively. While many assume that it is a cognitive shortcut driven by cognitive limitations, recent literature suggests that it is not a strategy per se, but another outcome of people's well-documented misperception of randomness. People search for patterns even in random sequences, which results in probability matching at the outcome level. Previous studies have supported this by the counterintuitive finding that distracting people, thereby preventing pattern search, results in behavior that appears more

rationally. Here, two experiments demonstrate that there is actually truth in both accounts. For some participants, probability matching indeed was the result of a cognitive shortcut, a simple “win-stay, lose-shift” strategy. For others, however, a potentially smart pattern search strategy underlies probability matching. These probability matchers (who still look irrational in the absence of patterns) do have a higher chance of finding a pattern if one exists. Contrary to the almost uniformly negative perception, we therefore conclude that there is at least a smart potential behind probability matching.

Poker players are aces at probability estimation!

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Poker players' decisions are informed by the probability they will hold the best cards at the conclusion of a hand. Exact mental calculations of this probability are impossible – so, players must use judgment to estimate their chances. In 3 studies, 69 poker players estimated the probability of obtaining the best cards at the table for up to 75 hands, based on the limited information available in the early stages of a hand. Most players were very accurate: the correlation between judged and true probabilities was $r > .8$ for over 80% of participants, and when judgments were averaged across players and within hands this correlation was .96. Players slightly overestimated their chance of winning. Estimates were slightly too strongly related to the strength of the two cards that a player holds, and insufficiently influenced by the number of opponents. Seemingly, players show somewhat insufficient regard for the cards that other players could be holding and the potential for opponents to acquire a strong hand. The results show that even when judgment heuristics are used to good effect in a complex probability estimation task, errors are still observed at the margins of performance.

Determinants of the probability weighting function

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According to prospect theory, when making decisions under risk people overweight low probability events and underweight high probability events. This claim has been supported in several experiments. A first purpose of this research was to find out whether the inverse S-shaped weighting function become more linear when, instead of numerical format, the experience-based probability format will be used. This hypothesis was based on the results showing several advantages of using the experience-based format for communicating probabilistic information.

Results of the present experiment supported this hypothesis. The second purpose for doing the study was to check whether the shape of the probability weighting function is related to findings in earlier studies on judgments of frequency, which show that rare events were overestimated and frequent events were underestimated. It was found that the shape of the weighting function is mainly due to the misperception of probability.

Assessing joint distributions with isoprobability contours

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Often we need to estimate joint probability distributions and / or measures of dependence between several variables. We present a new method for constructing joint probability distributions of continuous random variables using isoprobability contours – the sets of all the points with the same joint cumulative probability. This approach reduces the joint probability assessment into a sequence of binary choices between various combinations of the variables of interest and eliminates the need to assess directly the dependence, or association between them. We discuss properties of isoprobability contours, describe methods for their assessment and illustrate their use to infer the correlation between the target variables. We report results of an experiment involving 25 judges who used the new method to assess the 50th percentile isoprobability contour of the joint distribution of height and weight in a population of students. The results indicate that the subjects provided meaningful, consistent and reliable judgments that can be used to infer indirectly the correlation between the two variables. We discuss possible applications, extensions and directions of future research.

Information search patterns in risk judgment and in choices

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The study was designed to investigate: the relative importance of basic dimensions of a risky situation (i.e. payoffs and probabilities) and the information acquisition patterns in risk perception and choice. The modified version of Mouselab Web public domain software developed by Willemsen and Johnson (<http://www.mouselabweb.org>) was used. In 2 experiments, respondents were presented with risky situations, which consisted of 3 options. Each option consisted of 4/5 outcomes - 2 losses and 2/3 gains. Participants could disclose as much information as necessary to

judge options' riskiness and to choose one of them. Participants judged risk and made choices for 7/6 different risky situations. Preliminary analysis shows that: 1. On average, respondents looked at ca 50% of available information for all situations. 2. A majority of information search patterns (70%) is in line with the dimensional model, i.e. respondents compared the options across a given dimension. 3. Analysis of data that relate importance of different dimensions as well as data that address the relative psychological accuracy of EV, CPT and the cumulated probability of success as a choice criterion is in progress.

Choosing heuristics in choice under uncertainty

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Research has shown that people are risk-seeking when the probability of winning is low but risk-averse when it is high. We challenge this widespread finding by investigating choices under uncertainty for which exact probabilities are not known. We predicted that choice under uncertainty puts more weight on probabilities than on outcomes, whereas the reverse is true for choice under risk. Different triggering conditions – outcome versus probability – were further predicted to cause different choice heuristics leading to a reversal of the standard choice pattern in the uncertainty domain. Using a classical research design, in two studies participants (a) assessed the probability of an uncertain event and (b) later bet either on the uncertain event or a sure amount of money. Results show that choice under uncertainty differs markedly from choice under risk. Congruent with our hypothesis, people adaptively selected from a toolbox of heuristics.

Choosing how many options to choose from

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Choosing how many options to choose from: Is there such thing as a desired-set-size? The number of options people choose from - often an independent variables in decision research - is normally controlled by the decision maker. We conducted a questionnaire study to address the following questions: 1. Are people able to state a Desired-Set-Size (DSS), 2. Does people's DSS depend on the product, and 3. Does it depend on the self-interest of the person composing the choice set? For

eight product domains (e.g. toothbrush, chocolate, furniture, digital camera), 96 participants answered questions concerning 29 variables including DSS and measures of costs and benefits. Our domains varied along the dimensions of the Rossiter-Percy grid, namely type of decision (low-vs. high-involvement) and type of motivation (informational – product solves a problem vs. transactional – product increases happiness). Results indicate that significantly more people stated a DSS for the high- than for the low involvement domains. Furthermore, people stated a significantly higher DSS in the high- than in the low-involvement domains and in the transformational than in the informational domains.

Why rare events impact people's lives but not their choices

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Important events, like natural disasters or winning the lottery, are rare. So how do people deal with rare events? Two different experimental paradigms give two conflicting answers. In decisions from description—the predominant tool of research on risky choice—all information about an option is available. Choices there are strongly impacted by small probabilities. In contrast, when people make decisions from experience, they appear to neglect rare events. Decisions from experience represent the common situations in which decision makers base their choices on previous encounters with similar options. To simulate this in the laboratory, people choose between unlabeled options. Prior to the decision, they learn about the properties of the options by sampling from them inconsequentially. We use a large set of cognitive models to analyze people's decisions from experience. Our results imply that people making decisions from experience adjust their sampling and choice strategies based on the choice environment and employ simple and robust strategies that—under the right boundary conditions—lead to choices quite different to those in decisions from descriptions.

One man's trash is another man's treasure: Choice & context

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A shared assumption of dominant theories of risky decision making is a transformation of monetary amounts into their subjective equivalents using psychoeconomic functions, independent of the distribution of values outside the task context. We examined whether choice can also depend on the distribution of attribute values in memory. 195 supermarket customers were offered the opportunity to draw a ticket from one of two lotteries (high probability of winning a small amount

or low probability of winning a large amount) in exchange for their supermarket receipt. It could be shown that the preference for the riskier option was dependent on the distribution of the prices of items bought prior to the experiment. The higher the proportion of item prices falling between the two lottery wins, the higher the probability of choosing the riskier option with the larger amount. The results suggest that the subjective value of a given amount is not a stable psychophysical property but is instead constructed online depending on the distribution of similar values in memory. A model that incorporates such an evaluation including samples outside the choice context is the decision by sampling model.

CLT and choice between enriched or impoverished options

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We examined the impact of psychological distance on the tendency to reject or to select enriched alternatives. Shafir, Simonson, & Tversky (1993) have shown that “enriched” alternatives, which have many pros and cons, are more likely to be both chosen and rejected than “impoverished” alternatives, which have fewer attributes. Based on Construal Level Theory (CLT, Trope & Liberman, 2003), we predicted that people would give more weight to pro considerations when making a choice from a psychologically distant perspective and more weight to con considerations when making a choice from a psychologically near perspective. Therefore, enriched options are more likely to be selected from a distance and rejected from proximity. This prediction was supported with manipulations of temporal distance (Study 1) as well as construal level (Study 2).

The role of affect in donations to victims in need

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Ellen Peters & Paul Slovic

Decision Research, Eugene, University of Oregon

We ask participants to donate money to help save a child. In the single condition, participants read and learn about one child, Rokia, that their donations will go to. In the combined condition, participants learn that their donation will go to either two or eight identified children or one unidentified victim. One hundred seven undergraduates completed the experiment. Participants saw eight pictures of each type of victim (e.g. in the single victim block participants saw eight different pictures each depicting a single child). Physiological measures (facial EMG indexing positive/negative affect and GSR indexing arousal) were measured for each picture shown in a block. After each block one picture was randomly chosen and participants were asked to donate to this particular individual/group of individuals. We find that donations decrease linearly with increasing number of victims. A similar main effect was obtained for Facial EMG activity indexing positive affect, where activity decreases linearly with increasing number of victims.

Mood management and sympathy as predictors of donations

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Namika Sagara & Paul Slovic

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Affective reactions are an important element in the motivation to help others. Our research examines the role of affective vs. deliberative information processing in the genesis and use of emotional reactions in decisions to donate money. Affective reactions are categorized into empathic feelings (e.g., sympathy) and feelings related to mood management (e.g., anticipated regret). We investigate whether information processing mode influences participants' donations, affective reactions, and the relationship between the two. Information processing is manipulated by a priming procedure and a cognitive load paradigm. Results suggest that different mechanisms govern the initial decision to donate money compared to decisions on how much money to donate. Mood management is predictive of donation decisions as well as donation amounts regardless of information processing condition. Empathic feelings are only predictive of the donation amount when participants' deliberative resources were limited and when participants were primed to feel.

The disruptive effects of deliberative processing on pro-social behaviour are discussed in light of a two-stage processing model of donations.

Moral emotions: Not so social when another repairs for you

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Moral emotions play an important role in many prosocial decisions. But do moral emotions such as guilt really motivate prosocial decisions and behavior? While prosocial behavior concerns both materialistic and social well-being of others, I claim that moral emotions stimulate people to only focus on the materialistic side. Four experiments show that, when another person repairs the materialistic side of all the damage that people cause to a victim, their guilt feelings, reparative intentions, and prosocial behavior disappear. Guilt feelings and prosocial behavior decreased when the materialistic damage was partly or fully repaired by another person (Experiment 1). These effects were independent of whether repair was done by family or by an unknown other (Experiment 2). It appears that transgressors perceive no differences between situations where they repair themselves and where another person repairs for them (Experiment 3), and even when given explicitly the opportunity to repair the damage socially or materialistically, transgressors do not act prosocially when another has repaired the materialistic damage (Experiment 4). Thus, moral emotions may not be so social after all.

Wrong but funny: Moral violations can elicit mixed emotions

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Research on moral judgment documents a strong association between moral violations and negative emotions. We draw on anecdotal evidence and humor research to suggest that moral violations can also elicit a positive emotion: amusement. People experience mixed emotions of amusement and disgust when a behavior can be simultaneously interpreted as a moral violation and as okay. We explore three ways a behavior can be considered both a moral violation and okay: 1) the behavior violates one relevant norm but is consistent with another relevant norm, 2) the behavior violates a weakly held norm, or 3) the behavior that violates the norm is psychologically distant. Moral violations that cannot also be considered okay elicit strictly negative emotions as opposed to mixed emotions.

Affect, happiness and cognitive subjective well-being

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The goal of the present research is to contribute to a clarification of how people's judgments of life satisfaction (cognitive SWB or remembered utility) are related to affective SWB (mood or accumulated utility) and affect (moment utility). The hypothesis is that influences of affective responses on cognitive SWB are mediated by affective SWB. In Study 1 measures of each construct were administered to 105 psychology undergraduates. The same measures were in Study 2 administered to another 80 psychology undergraduates randomly assigned to four different affect-induction conditions requesting participants to imagine that information about passing (vs. failing) an exam was disseminated on a warm and sunny (vs. cold and rainy) day. Mediation analyses showed that in Study 1 the effects of affective responses on cognitive SWB were fully mediated by affective SWB. Study 2 similarly showed that the induced affect valence had an impact on cognitive SWB mediated by affective SWB. It was also found imagining a sunny weather buffered the negative impact of failing an exam on affective and cognitive SWB.

Temporal framing of normative equivalent quantities

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Using temporal manipulations (e.g. daily vs. yearly discount), it is shown that people overestimate amounts expressed in a short-term (e.g., daily) compared to a long-term (e.g., yearly) context. We also manipulate the target description in absolute (e.g., a discount on a newspaper subscription price in euros) or proportional (% of price reduction) terms. It is shown that people overestimate a 10% increase in subscription fees when expressed as a raise of the daily price compared to the equivalent raise expressed as a 10% increase on a yearly basis. The same pattern of results was also obtained when using different contexts. Furthermore, similar effects were observed when we replaced monetary estimates with time estimates, showing that this is not an isolated phenomenon. Finally, it is shown that these biases affect not only the perception of objective quantities but also the subjective assessment (e.g., attractiveness) of goods and events. Implications of these findings for different domains of decision making and marketing will be briefly discussed.

Patience auctions and the impact of time vs. money framing

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California Institute of Technology

We introduce, test, and compare two novel incentive-compatible auction-based experimental methods for eliciting discount rates. In these “patience auctions”, subjects bid the smallest sum they would prefer receiving in the future -or- the longest time they would prefer waiting for a reward, rather than receive a smaller, immediate payoff. The winning bidder receives the delayed reward; all other bidders receive the smaller, immediate payoff. These auctions offer a few important advantages over other methods of elicitation. In addition, they allow us to examine new and important questions about the determinants of discounting. Among other things, we compare how discount rates vary depending on whether the auction focuses subjects’ attention on the temporal or monetary dimension of delayed rewards. We find that people are much more patient when they bid time than when they bid money –a difference not obtained with equivalent hypothetical matching surveys. Our results are robust to varying assumptions about the curvature of the utility function (risk-aversion vs. risk-neutrality), as well as the form of the discount function (exponential vs. hyperbolic).

Time and the relative importance of probability and outcome

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Often decision outcomes are both risky and delayed: We don’t know what the outcome of the selected option will be and we must wait to know the final result. Building on Loewenstein’s (1987) savouring hypothesis and on the construal level theory (CLT; Liberman, Sagristano, & Trope, 2002) we propose an outcome anticipation hypothesis, that assumes that when we are faced with a decision which involves both the outcome and the risk being resolved in the future, we give more importance to the outcome (payoffs) in the future and more importance to the probability (risk) in the present. Coherently with Kahneman’s notion of accessibility (2003) we assume that this is due to a greater accessibility of the emotions evoked by the outcome and a low accessibility of the emotions evoked by the probability. We revise previous published evidence that supports our hypothesis and also describe three new experiments directly testing our hypothesis. In these three experiments we show, using real gambles, that time delay can reverse the standard result that P-bets are rated more attractive than \$-bets and that people give payoffs less importance in the present in the future.

Effect of temporal distance on attitudes toward ambiguity

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This paper provides a comparative analysis of ambiguity preferences for current and future prospects. Building on a recent paradigm that emphasizes the importance of the ambiguity source, we distinguish between vagueness over probabilities and vagueness over outcomes. Through a series of experiments, we found that individuals become less averse toward both sources of ambiguity as the temporal distance increases. These changes in ambiguity attitudes are above and beyond any changes in risk preferences. The results are consistent with construal level theory (Trope & Liberman, 2000, Sagristano et al. 2002), which asserts that the influence of the probability dimension tends to diminish with time delay while that of the outcome dimension tends to increase.

Are prospect theory preferences stable over time?

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Prospect theory is regarded as the most promising descriptive decision model under uncertainty. Various tests have corroborated the validity of the characteristic fourfold pattern of risk attitudes. But is it also safe to assume stable prospect theory preferences at the level of an individual? In this paper we provide a theoretic framework to measure the temporal stability of prospect theory parameters. We experimentally apply our approach to 86 subjects for which we elicit prospect theory parameters twice, with a time lag of one month. Our analysis reveals that measuring the time stability of multi-parameter decision models such as prospect theory is far more complex than evaluating single-parameter models such as expected utility theory with constant relative risk aversion. We show that a non-negligible proportion of subjects do not possess time stable prospect theory preferences. This finding is robust across different definitions of time stability.

Positive and negative affect on intertemporal choice

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Choices over time are characterized by two apparently contradictory tendencies : On the one hand decision makers are impatient and put disproportionate weight on immediate benefits (e.g., the pleasure from chocolate cake); on the other hand they can also consider the longrun consequences of choices and are able to delay present gratification in exchange for greater delayed gratification (e.g., good health). Two different regulatory mechanisms have been proposed to explain these two tendencies, an affect-based mechanism which values immediate gratification, and a deliberative mechanism which is responsible for valuing the (relatively) distant future. This suggests that increasing “affective arousal” will also increase impatience. We propose, and show, that the situation is more complex. An increase in negative affect does increase impatience, but an increase in positive affect decreases it.

Framing mistakes: Too little is better than too much

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Nearly all framing studies to date presuppose unbiased estimates. If an expert says that “program A will save 200 people”, it is tacitly assumed that this prediction is correct. In real life, this is rarely the case. In the present study we want to extend the study of framing to claims that eventually turn out to be incorrect. Participants in three experiments were asked to rate how correct, and how true, are predictions and reports that either overstate or understate the facts. Overall, understatements were considered more accurate than overstatements, and pessimistic statements were better than overly optimistic ones. Thus predictions of an outcome that turns out better than expected, should preferably have been presented in a positive frame (e.g., money saved), whereas outcomes that turn out worse than expected, will appear less “wrong” if predictions were presented in a negative frame (e.g., money lost). Parallel studies were performed with wrong predictions and incorrect factual claims (lies). In both cases, correctness ratings were affected by the way the statements were framed.

Illusion of political sophistication

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Princeton University

To make good decisions, one must have relevant information about the available choices. This is especially true when decisions are important, such as voting in a national Presidential election. In two studies, participants believed that they knew more about their candidate’s stance on a range of issues than they actually did, a phenomenon known as the Illusion of Explanatory Depth (IOED). This was true even for issues that participants identified as the most important. This is particularly distressing because most participants believed they had enough information about the issues to vote competently. Thus, voters may choose not to seek additional information on the candidates in part because they believe they know more than they do about the issues. We suggest that IOEDs occur when people mistake superficial or abstract impressions of a concept for a more nuanced, concrete understanding of the concept. In support of this idea, participants who were induced to construe the world at a concrete level were better calibrated in their meta-knowledge assessments than those who were induced to construe the world abstractly.

Information processes underlying the MPG-illusion

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Larrick and Soll (2008) showed that the Miles Per Gallon representation can lead to less optimal decisions, because the relation between MPG and actual gas usage per distance is not linear (as people assume) but curve-linear. E.g., improving a car from 15 to 19 MPG is actually twice as good as improving another one from 34 MPG to 44 MPG, contrary to what people intuitively think. However, providing this information in GPM format increased fuel efficiency decisions from 25% to 64%. In an online processing study, we looked at differences in the information acquisition processes of decision makers, and related these to their numeracy and cognitive abilities (using CRT). Presentation order and gender significantly affected choice proportions, but numeracy and CRT did not. In terms of the process, more attention was given to helpful GPM information for correct decisions, but incorrect decision makers did not similarly look more at the inappropriate MPG information; their processes suggest they could not come up with any strategy to make a decision. Implication for the design of decision aids (such as fuel-comparison sites) will be discussed.

Explaining the conjunction fallacy

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Major recent accounts of the conjunction fallacy (CF) phenomenon postulate that people may assess the probability of a conjunction by a (non-normative) averaging rule as applied to the constituents' probabilities or represent CF as an effect of random error in the judgment process. We developed and tested a novel reading of the phenomenon as based on inductive confirmation, a central notion in contemporary Bayesian epistemology. Both the averaging rule and random error theories predict that CF rates would raise as the judged probability of the added conjunct does, while our account of CF predicts that it would raise as the judged confirmation of the added conjunct does. Three studies will be presented in which the probability of the added conjunct in CF problems has been

systematically manipulated and dissociated from corresponding degrees of confirmation in controlled conditions. The data obtained strongly favor a confirmation-theoretic account of CF against competing theories relying on the probability of the conjuncts as major determinants of the phenomenon. Such a result sheds new light on the subtle connection between probabilistic and inductive reasoning in human cognition.

Effects of conjunction fallacies in evaluating football bets

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This paper investigates whether people obey the conjunction rule when evaluating predictions about the outcomes of football games. The conjunction rule states that if event A and event B are two independent events, the probability that both events A and B will occur cannot be greater than the probability that A will occur. In an empirical study, it was shown that people frequently violated the conjunction rule when evaluating bets about the outcomes of (real) football games. When a prediction with a low or intermediate likelihood of success (e.g. Stoke City will beat Man. United) was combined with one or two predictions that had high likelihood of success (e.g. Liverpool will beat Wigan), it was perceived to be more likely to happen than when it was presented alone. This was not true when it was combined with a prediction with a low likelihood of success. Thus, the perceived likelihood of a particular bet is dependent on the context in which it is presented. Overall, data was consistent with a hypothesis suggesting that people assess conjunctive probabilities by computing a weighted average of the ingoing constituent probabilities.

Wasting time to avoid the appearance of wasting money

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“Waste not want not” expresses our culture’s aversion to waste. “I could have gotten the same thing for less” is a sentiment that can diminish pleasure in a transaction. We study people’s willingness to “pay” to avoid this spoiler. In one scenario, participants imagined they were looking for a rental apartment, and had bought a subscription to an apartment listing. If a cheaper subscription had been declined, respondents preferred not to discover post hoc that it would have sufficed. Specifically, they preferred ending their quest for the ideal apartment after seeing more, rather than fewer, apartments. Three other scenarios produced similar results. We conclude that people may sometimes prefer to waste more in fact in order to waste less in appearance.

Unraveling fairness: (individual) empathy and (social) norms

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What tools inform decision making and in particular fair actions in a social context? Empathy and social norms are central to fairness. Empathy enables humans to share feelings and emotions of others. Relying on affective cues, empathy is closely associated with altruism and other-regarding preferences. Similarly, social norms inform fairness. Being socially constructed, they depend on the beliefs of the members of a population. Besides the belief of an individual that others might conform to a social norm, the individual must still have a preference to act according to this norm. We explore the relevance of empathy and social norms utilizing the Dictator Game (DG) and the Ultimatum Game (UG). We find that empathy has only a weak influence on offers made in the DG and has no effect in the UG. In contrast, social norms have an intermediate correlation of .32 in the DG and increase to a correlation of .52 in the UG. This highlights the importance of social norms and expectations of shared beliefs feeding into a reciprocal system. In contrast, empathetic perception which people might or might not share with others, is not a central element in the context explored.

Does fairness matter more than theory of mind?

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Research with bargaining games such as the Ultimatum Game-UG- showed that decision making is a complex process involving psychological components (Sanfey, 2007). In the UG a proposer (P) makes an offer about the division of an amount of money, a responder (R) decides to accept (P-R earn something) or to refuse (P-R earn nothing). People's behaviours often deviate from the predictions of classical economic theories (Camerer, 2003). Research showed that adults reject

unfair offers more if they are made by a human partner than by a computer (Rilling et al., 2004) and behave differently according to various degrees of humanlikeness of the partner (Krach, et al., 2008). The present study explores in a sample of 177 children (5 to 10 years) the effect of: 1) fairness and intentionality; 2) and theory of mind in the decisional process throughout development. Results show that for children (N=91) with a inconsistent pattern of acceptances, fairness and intentionality are significant. In the group of children (N=86) with a consistent pattern of acceptances only fairness and interaction with age are significant.

Are children consequentialist? Evidences from the ultimatum game

Davide Massaro, Ilaria Castelli

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Cristina Bicchieri

University of Pennsylvania

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Social preferences in decision-making have been explained by consequentialist inequality aversion models, i.e. based on the final distribution in bargaining games such as the Ultimatum Game-UG. A proposer (P) makes an offer about money, a responder (R) decides to accept (P-R earn something) or to refuse (P-R earn nothing). Behavioural inconsistencies can be explained with a social norm of fairness (Bicchieri, 2006): the manipulation of expectations about fairness norms leads to behavioral changes (Bicchieri, Chavez, 2008). The current study explores children's sensitivity (102 children 8-10 years old) to fairness norms. In this sense three modified UG (possible choices: 5-5, 8-2, coin flip) were administered in different conditions: 1) Full Information (FI): P and R knew about the coin flip; 2) Private Information (PI): only P knew about the coin flip; 3) Limited Information (LI): R did not know the coin flip outcome. Children-proposer use a self-serving bias as adults: they chose coin more than 5-5 and 8-2 in FI, but differently from adults they chose coin less than 5-5 and 8-2 only in PI. Children-responder consider 5-5 and coin as fair in all the information conditions.

Avoiding negotiations – When want and should collide

Shaul Shalvi, Michel Handgraaf & Carsten de Dreu

University of Amsterdam

Negotiation is potentially beneficial to those engaging in it, but is nevertheless often avoided. Little is known about why. Every negotiation inherently involves a tension between fairness and self interests, earlier described as an intrapersonal conflict between want and should considerations (Bazerman, et al., 1998). We propose that it is this tension that leads to negotiation avoidance. In 4 studies, using an Ultimatum Game with an exit option, we gain support for this hypothesis. Study 1 revealed that increased want-should tension leads to negotiation avoidance. Study 2 ruled out calculus complexity as an alternative explanation. Study 3 found that lowering the threshold for acting in an unfair way by confronting participants with a competitive responder reverses the effect on avoidance tendencies. In Study 4 proposers primed with a want prime (20 Euro note) made more offers compared to those primed with a should prime (Bible). Interestingly, people who actively enter negotiation behave more generously compared to others who are forced to negotiate (as is common in experimental research). Our results suggest that people avoid negotiation as the want-should tension increases.

Cooperation – social desirability, conformity and altruism

Piers Fleming & Daniel John Zizzo

University of East Anglia

216 students were divided into three groups (control, high or low social desirability). At a subsequent session three types of economic game were played. Game 1) A dictator game was played in which a participant decided how much of her money to spend to give money to her partner. Game 2) An inverse dictator game in which a participant decided how much of her money to spend to reduce her partner's income. Game 3) A 10 round public goods game in which both players could choose to spend some money to place in a group fund which would give both players 70% of the amount spent. The research intended to investigate if trait social desirability correlated with increased generosity to others, or for joint benefit, and whether that correlation would apply to both stated intentions and behaviour. Social desirability did correlate with stated intention for common benefit but not with more generous behaviour. Instead social desirability correlated with behaviour that conformed with the demands of the experiment – i.e. more spending both to increase and to decrease the partner's income.

Giving altruistic advice: Personal cost and others' benefit

Shoham Choshen-Hillel & Ilan Yaniv

Hebrew University of Jerusalem, Israel

Altruistic punishment is the phenomenon that people punish others for non-normative behavior, even at a cost to themselves. Advice-giving, like altruistic punishment, is costly and there is evidence that it leads to efficient social outcomes. We investigated people's willingness to give helpful information to others, even at a cost to themselves. Our experiments tested participants' willingness to forfeit a monetary prize in order to pass useful information they had discovered (the winning rule of a game) to an anonymous participant. The results demonstrate people's tendency to give costly advice and also that the rate of advice-giving increased with its effectiveness for the advice-receiver and decreased with its cost for the advice-giver. Moreover, participants who had chosen the more altruistic option (i.e., give advice) reported greater satisfaction with their decision than those who had chosen the self-interest option (i.e., receive a monetary prize). Ties to theories of social comparison, envy, and social utility will be considered.

The neural basis of intertemporal choice: An rTMS study

Bernd Figner,

Columbia University

Daria Knoch,

University of Zurich

Eric Johnson, Amy Krosch, Sarah Lisanby

Columbia University

Ernst Fehr

University of Zurich

Elke Weber

Columbia University

How do we choose to save for retirement, refrain from smoking, or endure exercise? Recently, several neural accounts of intertemporal choice have been suggested. McClure et al. (2004) argue for two competing valuation systems, while Kable and Glimcher (2007) argue for a single valuation system. In contrast, work by Knoch and Fehr (2007) suggests that processes of self-control, crucially involving dorsolateral prefrontal cortex (DLPFC), might shift choices from short to longer-term interests. We used repetitive transcranial magnetic stimulation to test these accounts causally and found that disrupting the function of the left DLPFC - compared to right DLPFC and sham control - (1) increased impatience in choices with an immediate reward option, but not those with only future rewards; (2) did not affect evaluations of choice options; (3) reversed the pattern of general self-control in choices with an immediate reward. Results argue against dual and single valuation accounts and support a self-control mechanism in which the left DLPFC modulates valuation signals that give greater weight to the later larger reward in choices that include a tempting immediate reward.

An fMRI evaluation of the probability-time tradeoff

Franz Heukamp, Maite Aznarez-Sanado, Maria Fernandez-Seara, Francis Loayza

& Ewa Salamon-Klobut

University of Navarre

We document an fMRI study on choice between risky delayed prospects (i.e. an amount x to be received at time t with probability p , or otherwise nothing). The study investigates the tradeoff between the delay and probability dimension of tasks and compares the brain networks that are

involved. We test whether delay and probability are treated in similar ways such as suggested by the different authors in the literature. The study involves thirty subjects.

Effort-reward representation in the brain

Irma Triasih Kurniawan, Ben Seymour & Deborah Talmi

University College London

Action anticipation yields separate effort and reward representations in the striatum and integrated representation in the anterior cingulate cortex (ACC) (Crosson et al., 2009). However, it is unclear if the same mechanism occurs during action valuation. Using fMRI, we investigated how the brain calculates effort and reward when making a choice. In our task (N = 17), participants chose to do nothing or to exert effort by gripping for a sum of money. We manipulated effort and reward level (low and high), and tested if choice is influenced by effort and reward. As expected, participants were more willing to grip when the gain is higher and when the effort is less. We examined BOLD response during the evaluation of options. Less effort yielded greater ACC activity. More reward was associated with greater medial frontal cortex activity. Importantly, an interaction was localized to basal ganglia indicating that when valuing an action, effort and reward are integrated as the value of an action in the basal ganglia. The results corroborate findings regarding the role of ACC and bring new insights regarding the importance of basal ganglia in action valuation.

Choice overload in the brain

Elena Reutskaja

IESE Business School

Axel Lindner

Hertie Institute for Clinical Brain Research, Tuebingen

Rosemarie Nagel

Universitat Pompeu Fabra

Richard A. Andersen & Colin F. Camerer

California Institute of Technology

Whereas classical economics argues that more choice is beneficial, recent studies suggest that large choice sets can be demotivating and lead to “choice paralysis”. We investigate the neural correlates of these phenomena by providing twenty subjects with various numbers of choice alternatives (6, 12 and 24 landscape photographs) while measuring brain activity using fMRI. “Preparatory” fMRI-activity increased with the choice set-size in extrastriate visual cortex and premotor areas. Thus, fMRI-activity within these areas might reflect the “cost” of choosing. Areas

exhibiting fMRI-activity that resembled an “inverted-U” trend with the increase of the number of items in the set were mapped within posterior parietal cortex (PPC), striatum, dorsal ACC, orbitofrontal cortex (OFC) and dorsolateral prefrontal cortex (DLPFC). fMRI activity in these areas increased from small to intermediate choice sets and decreased from intermediate to large sets. Therefore, the activity within these areas might reflect the “net benefits” of having choice. Brain activity was further modulated by “freedom” of choice and availability of the clear favorite item in the set.

Subcortical correlates of gambling behavior

Claudio Lucchiari, Manuela Fumagalli

University of Milan

Sara Marceglia, Simona Mrakic-Spota, Domenico Servello

Fondazione IRCCS Ospedale Maggiore Poli

Alberto Priori & Gabriella Pravettoni

University of Milan

Advanced Parkinson’s disease is often associated to an alteration of decisional processes. Basal ganglia, and specifically the subthalamic nucleus (STN) is involved in impulse control and in decisional processes. Deep brain stimulation (DBS) besides an effective therapeutic tool, is a physiological “window” on human subcortical structures that through LFP recordings in patients provided an amount of physiological data on basal ganglia, especially in relation to their motor, cognitive and affective functions. In this study we aimed to assess this novel methodological approach for estimating the functional role of the basal ganglia during a gambling task by recording the scalp EEG and LFP oscillations from the STN. Results of electrophysiological recordings showed that STN oscillations were modulated by the execution of gambling task and that this modulation was different from that induced by the execution of a motor control task: gambling tasks synchronized beta activity in both subbands. We conclude that LFP oscillations provide a novel direct window on STN activity during gambling behavior.

Information sampling in decision making groups

Yanan Feng, Nicola Bown, Christopher Allinson & John Maule

The University of Leeds

Theories of the information sampling process in decision making groups have suggested a probabilistic explanation for the ‘collective information sampling bias’ (CIS bias). However, the simple probability models cannot account for the patterns of information pooling that occur where members know what information is shared and unshared. In these cases, other social dynamics may influence members’ sharing of information. The present study extends the existing literature by focusing attention on contextual analysis of the information sampling model. In particular, this research investigates how culture influences the information sharing process. Findings indicated that although no significant difference was found in the total amount of unshared information exchange, the way in which unshared information was exchanged was different - Chinese participants were more likely to use indirect way of communication while British participants tended to use a more direct way. In addition, the sequence in which shared and unshared information was introduced into group discussion was found to be different between Chinese and British groups.

Do groups defer choice more than their members?

Chris M. White, Sebastian Hafenbrädl, Ulrich Hoffrage, Nils Reisen & Jan K. Woike

Université de Lausanne

When making choices, as well as being able to select an option, people normally also have the option to select nothing (i.e., to defer choice). Although there is some research on when and why individuals defer choice, almost no research addresses choice deferral in groups. We investigate whether groups defer choice more often than their members and how the members’ preferences result in group responses. We divided 931 participants into 174 groups. When a group saw a set of options, they could select one of the options or defer choice, in which case they would see a new set of options to choose from. We found that groups did defer choice more often than individuals. The effect was large when the appropriate proportions fell more towards the middle of the range ($d = 0.55$ & 0.79) but floor or ceiling effects may have hidden the effect in other situations. The groups may have used a weighted plurality decision rule to combine the members’ preferences in which preferences to defer choice received more weight than those to select a certain option. This could be explained by groups being more risk-seeking than their members, but we also offer several other explanations.

Information aggregation and communication in group decisions

Barry Sopher, Richard Lau, Jeffrey Birchby & David Anderson

Rutgers University

We study small group decision making in an environment where decision makers receive independent and private signals about the probability of payoff-relevant states of the world. Two policies, one risky and one safe, are available for adoption. We use laboratory experimental methods. Subjects are given individual payoff biases favoring or disfavoring one of the policies. Subjects communicate over given network architectures and then vote to determine which policy to adopt. We find that connected networks are best at promoting full information aggregation, and also lead more often to the socially best policy being adopted. In rounds without payoff biases communication is generally truthful (in reporting own signals), while in rounds with payoff biases the truthfulness of communication is about 80% overall. Interestingly, subjects effectively discount communication from biased sources, and groups manage to adopt the socially efficient outcome remarkably often, in spite of substantial individual biases that frequently provide a majority of the subjects in a group the incentive to deviate from the socially efficient policy and adopt the individually optimal policy.

Learning in teams with conflict of interest among members

Boris Maciejovsky

Imperial College London

Matthias Sutter

Innsbruck University

David Budescu

Fordham University

Patrick Bernau

Innsbruck University

There is strong evidence that groups perform better than individuals in intellectual tasks with demonstrably correct solutions. Typically, these studies assume that group members share common goals. In this paper, we extend this line of research by replacing standard face-to-face group interactions with competitive auctions, allowing for conflicting individual incentives. We show that teams of traders learn the solution to the Wason selection task faster than individual traders. Moreover, teams are also more successful in transferring their acquired skills to a set of new problems, which are tackled individually. We identify payoff feedback and information pooling as

the driving factors underlying these findings, and we explain them within the theoretical framework of collective induction.

Sharing resources: Social distance and individual difference

Therese Kobbeltvedt, Gaute Torsvik & Sigve Tjøtta

University of Bergen

The interplay of social/contextual and individual differences was examined to study their impact on generosity and cooperation. Exp. 1 (n=103) studied the role of self regulatory focus (promotion/prevention), psychological predispositions, and prior behaviour for ultimatum game behaviour. The results suggested a strong adherence to prior behaviour and little impact from individual differences. Exp. 2 (n=125) studied the impact of decreasing levels of social distance on cooperation in a social dilemma. The results showed reduced cooperation in the low social distance condition (anticipated in-group discussion post donation). Exp. 3 (n=100) studied perceived fairness in social dilemmas, and suggested that people expect others to be selfish. Exp. 4 (n=50) reversed the social distance effect from Experiment 2 by using normative cues in the social dilemma game. These findings suggest that social proximity may decrease cooperation, questions the importance of individual differences for generosity and cooperativeness concerning money. Furthermore, our research stresses the importance of normative cues for reasonable behaviour within contexts which involve sharing of resources.

Preference prediction accuracy in couples decreases with age

Benjamin Scheibehenne

Indiana University

Jutta Mata

Stanford University

Peter Todd

Indiana University

To explore the factors that influence the accuracy of preference predictions among couples, we presented 38 young and 20 elderly couples with food dishes, movies, and kitchenette designs on a computer. For each of the 118 items, participants stated their own preferences and also predicted the preferences of their partner. To assess preference reliability over time, all participants were invited back for a second session 6 weeks later. A hierarchical Bayes model indicates that couples who were more similar in their preferences also made more accurate predictions, presumably because they could project their own preferences onto their partner. Accuracy also increased with

relationship quality and with the relevance of the domain such that food and movie preferences were better predicted than kitchenettes. Accuracy was higher for strong likes and dislikes and for reliable preferences. Young couples were more accurate in predicting their partner's preferences as compared to old couples even though the latter were more confident in their abilities and knew each other for many more years. This questions the role of feedback learning as a moderator of prediction accuracy among couples.

Do bipolar scales mask loss aversion?

David Schkade

University of California, San Diego

Daniel Kahneman

Princeton University

Peter McGraw

University of Colorado, Boulder

Jeff Larsen

Texas Tech University

Loss aversion in choice is commonly assumed to arise from the anticipation that losses will have a greater effect on feelings than equivalent gains. The evidence for loss aversion in judged feelings, however, is equivocal. We show that a key contributor to this mixed evidence is the use of bipolar rating scales, which permit positive and negative stimuli to be judged on psychologically separate scales of positivity and negativity. Our studies compare judgments made on bipolar scales with those made on unipolar intensity scales or relative intensity scales that encourage comparisons of gains and losses. We conclude that comparisons of gains and losses on a common evaluation scale (a context similar to choice) are sufficient for loss aversion to be revealed in judged feelings. Bipolar scales inhibit comparisons of positives and negatives, and thus can mask underlying loss aversion.

The boundaries of loss aversion in decisions under risk

Eyal Ert

Harvard University

Ido Erev

Technion - Israel Institute of Technology

We review the experimental research of loss aversion in decisions under risk to clarify the mixed evidence associated with this assertion. While some studies suggested no evidence for loss aversion

in one-shot choices among mixed gambles, other studies supported loss aversion. The apparent contradiction between the different studies is evaluated with new experiments. We find that the effect of losses increases when the experiment is long and boring (includes no feedback), the payoff magnitude is high, and when the safer option is framed as the status quo. Theoretical Implications are discussed.

Loss aversion: The comparative nature of affective reactions

Enrico Rubaltelli, Rino Rumiati

University of Padova, Italy

Paul Slovic

Decision Research, Eugene; the University of Oregon, Eugene, Oregon

In two studies we tested people's affective reactions toward sure outcomes and bets in joint and separate evaluation. In Study 1, people were presented with a sure gain [loss] of €100 versus a bet offering a .5 chance of gaining [losing] €200. In Study 2, people were presented with .98 chance to win [lose] €100 versus the same .5 bets. Participants were asked to rate how attractive they found each alternative, how clear was their feeling toward each alternative and the valence of their feelings (positive versus negative). In the positive frame, there was a significant interaction for each measure ($P < .02$). In JE, participants had a more positive affective reactions toward the sure gain than toward the .5 chance to win €200 ($P < .01$). In SE, the difference was not significant. The sure gain induced more positive feelings in JE than in SE ($P < .01$). In the negative frame again the interactions were significant ($P < .03$). In JE, participants had more negative affective reactions toward the sure loss than toward the .5 chance to lose €200 ($P < .01$). In SE, the difference was not significant. The bet induced a less negative affective reaction in JE than in SE ($P < .05$).

Loss aversion in the eye: The ANS's responses to losses

Guy Hochman & Eldad Yechiam

Technion - Israel Institute of Technology

The common view in psychology and neuroscience is that losses loom larger than gains, leading to a negativity bias in behavioral responses and Autonomic Nervous System (ANS) activation. However, evidence has accumulated that in decisions under risk and uncertainty individuals often impart similar weights to negative and positive outcomes. We examine the role of the ANS in decisions under uncertainty, and its consistency with the behavioral responses. In three studies, we show that losses lead to heightened autonomic responses, compared to equivalent gains (as indicated by pupil dilation and enhanced N200 waveforms) even in situations where the average

decision maker exhibits no loss aversion. Moreover, in the studied tasks autonomic responses were not associated with risk taking propensities. These results are interpreted by the hypothesis that losses signal the subjective importance of global outcome patterns.

Myopic loss probability aversion

Stefan Zeisberger, Thomas Langer

Finance Center Muenster

Martin Weber

University of Mannheim

For loss averse investors a sequence of risky investments looks less attractive if it is evaluated myopically. The consequences of this effect, called myopic loss aversion (MLA) or—more general—myopic prospect theory (MPT), have been analyzed in several experimental studies and its robustness is largely undisputed. However, the causes have not been thoroughly examined with regard to one important aspect. None of the studies is able to distinguish between MPT and a simple myopic loss probability aversion (MLPA) explanation since all lotteries were constructed in a way such that lower attractiveness in MPT always goes along with higher loss probabilities. In this study we disentangle the effects of MPT and MLPA and analyze the robustness of both explanations in two laboratory experiments. Our analyses reveal that the results strongly depend on the parameterization of prospect theory and specific lottery characteristics. If lotteries are carefully calibrated according to recently elicited preference parameters the MPT explanation is favored over the MLPA one. Nevertheless, we have to conclude that the transferability of the effect into practice is not as robust as probably assumed.

Losses induce consistency in human choice behavior

Eldad Yechiam

Technion – Israel Institute of Technology

The Loss Signals Risk hypothesis argues that losses increase the subjective significance of global outcome patterns and thus signal the existence of environmental risk. In decisions under uncertainty, this is predicted to result in no loss aversion, but rather in a positive effect of losses on the consistency of risk taking levels within the individual due to the activation of trait-relevant individual differences. The consistency of risky selections across two sessions was evaluated in an experimental study of 130 participants. The study also examined the effect of losses on consistency across different choice problems and between behavioral choices and self reports of actual behavior. The results showed that while there was no loss aversion for the average participant, losses indeed

facilitated temporal consistency across sessions. Moreover, risk taking in a mixed gain-loss domain was more closely associated with behavior in the loss than in the gain domain, showing that losses produced more uniform responses than gains. Losses also improved the consistency between symmetric and asymmetric risks, and between laboratory decisions and self-reported ratings of risky behavior.

Are representativeness judgments automatic and rapid?

Gaëlle Villejoubert

University of Toulouse II

The literature offers two conflicting accounts of the cognitive underpinnings of the conjunction fallacy. Kahneman and Frederick (2002) argue judgments are solely driven by heuristic processing. By contrast, De Neys and Glumicic (2008) suggest intuitions result from a combination of heuristic and logic processing. First, this study aimed to evaluate these competing accounts using a novel methodology to disentangle the relative contributions of representativeness and logic considerations in intuitions about the conjunction rule of probabilities. Second, it aimed to assess the effect of time pressure on these probabilistic intuitions. According to the two-system view of cognition, participants required to respond rapidly should show an increased level of heuristic processing and a reduced level of logical responding. Results revealed that, contrary to what is commonly assumed, individuals are sensitive to the logic of sets. Moreover, assessments of representativeness are not automatic and rapid but are most influential when participants are not pressured by time to provide a judgment. Implications for the different dual-system accounts of probability judgments will be discussed.

Think or blink? Intuition and reasoning in moral judgments

Renata Suter & Ralph Hertwig

Faculty of Psychology - University of Basle

The contribution of intuitive and deliberative processes in moral judgments is controversial. For instance, one account assumes that intuitive processes alone determine the decision (e.g., Haidt, 2001), whereas others propose that both intuition and deliberation are involved, with more deliberation leading to increasingly consequentialist reasoning (e.g., Greene et al., 2001). The main difference between these accounts is whether moral judgment is affected by the amount of available resources. We pitted the predictions of these two accounts against each other. Participants were presented with moral dilemmas where deontological and consequentialist reasoning would lead to opposing judgments. The decision process was manipulated in five conditions. Specifically,

intuitive judgments were compared to judgments in four conditions: conscious reasoning (either fixed or unlimited time), unconscious reasoning, explicit reason listing. The proportion of consequentialist judgments did not differ between conditions. As explicit deliberation does not seem to affect moral judgments, our results support the hypothesis that judgments in moral dilemmas are mainly based on intuitive processes.

Cues used in spontaneous vs. deliberate randomness judgments

Sabine Czenna

Department of Microsociology and Social Psychology

This research investigated how individuals judge the randomness of sequences. First, judgments should reflect the cues alternation, run length and their interaction. Second, spontaneous and deliberate judgments should differ in the use of these relevant cues due to different processing: Spontaneous judgments reveal parallel and holistic cue integration, whereas deliberation results in serial processing and information search. This information search additionally provokes that the position of the longest run within the sequence (an irrelevant cue) only impacts deliberate but not spontaneous judgments. Two studies addressed these issues: Study 1 investigated the use of relevant (alternation and run length) and irrelevant cues (position of the longest run). It revealed that judgments are based on the relevant cues alternation and its interaction with run length, and the irrelevant cue position. Study 2 compared the use of cues in spontaneous vs. deliberate judgments: Whereas both, spontaneous and deliberate judgments used relevant cues, only deliberate judgments used the irrelevant cue position. Consequences for our understanding of judgments of randomness are discussed.

Lay intuitions about intuitive insight and intuitive choice

Yoel Inbar

Harvard University

Tom Gilovich

Cornell University

A long tradition in Western thought has enshrined reasoning as the surest way to reach a sound decision, although the opposing point of view, that sees intuition as a superior basis of many decisions, has had many advocates throughout history. But how do people actually balance intuition and reason when making decisions? We present four studies supporting a strategy cuing account: People are inclined to think that they should trust their intuitions whenever the characteristics of the judgment or decision resemble the characteristics of intuitive processing, and that they should

follow a rational analysis whenever the characteristics of the judgment or decision resemble the characteristics of rational processing. Cues that encourage rational processing include objective evaluability of the outcome (Study 1), complexity (Studies 2 and 3), and precision (Study 4). However, people who are chronically inclined to process intuitively are less likely to be swayed by these cues.

Beyond binary choice in the study of judgment heuristics

Jiaying Zhao & Daniel Oppenheimer

Princeton University

In this paper we demonstrate the perils of binary choice paradigms using the recognition heuristic (RH) (Goldstein & Gigerenzer, 1999; 2002) as a case study. We argue that using continuous dependent measures can provide insight well beyond what is possible from binary choice tasks. 45 undergraduate participants engaged in judgment tasks involving 20 largest world cities, in which they estimated each city's size (Part 1), rated it on a 10 point scale (Part 2), made binary judgments of which city was larger (Part 3), and finally indicated if they recognized the city, whether it was a capital, whether it was a tourist city, whether it was internationally prominent, and which country the city was in (Part 4). We found that both population estimation (86.58%) and rating scale (87.62%) did a better job of predicting people's binary choice than RH (85.62%). Moreover, we found that continuous judgments could make predictions of comparable accuracy regardless of whether cities were recognized. Our results call into question the validity of binary choice judgment paradigms, and the heuristics that exclusively rely on those paradigms for supporting evidence.

Regressiveness and subadditivity of quantitative judgments

Klaus Fiedler & Christia Unkelbach

Psychology Department - University of Heidelberg

Whenever there is noise in the environment or in an information-processing system, judgments are regressive. Large quantities are underestimated, whereas small quantities are overestimated. The influence of regression increases with the product of the extremity and the unreliability of the quantity being judged. This prediction is confirmed in frequency judgment experiments using extreme vs. moderate stimulus frequencies and a cognitive-load manipulation to vary unreliability. The regression model not merely provides a remarkable quantitative fit of basic frequency judgments. It also accounts for the inflated estimates resulting from splitting or unpacking stimulus categories into subcategories. Just as the basic regressiveness, the subadditivity of judgments (i.e. superordinate categories appearing less frequent than the sum of subcategory frequencies)

increases with extremity and unreliability, producing a mere-exposure effect that is sensitive to subjective frequency illusions that are independent of objective exposure frequencies. Altogether, these findings highlight the role of regression as an explanatory construct, beyond its commonly ascribed role as a statistical artefact.

ORAL PRESENTATIONS

<p style="text-align: center;">Tuesday August 25 13:30-15:30 Palazzo Istruzione</p>			
<p>CONSUMER JDM</p> <p><i>Aula Magna</i> Chair: Michaela Huber</p>	<p>VISUAL PROCESSING, ATTENTION AND DECISION</p> <p><i>Room 4</i> Chair: Yoella Bereby-Meyer</p>	<p>ECONOMIC JDM</p> <p><i>Room 6</i> Chair: Stephan Tontrup</p>	<p>MEDICAL/CLINICAL JDM</p> <p><i>Room 7</i> Chair: Rachel Davis</p>
<p>1) The effect of exposure to narrow versus broad categories Gulden Ulkumen</p>	<p>1) Visual attention tracking in decision situations Vivianne Visschers Rebecca Hess Michael Siegrist</p>	<p>1) The effect of question wording on inflation expectations Wändi Bruine de Bruin Wilbert VanderKlaauw Julie Downs Baruch Fischhoff Giorgio Topa Olivier Armantier</p>	<p>1) Causal models underlying clinicians' decisions L. De Kwaadsteniet York Hagmayer Cilia Witteman Nicole Krol</p>
<p>2) Variety seeking for consumable and non-consumable goods Shawn Curley Jesse Bockstedt Gediminas Adomavicius</p>	<p>2) An eye-tracking analysis of decision modes Nina Horstmann Andrea Ahlgrimm</p>	<p>2) The effect of monetary rewards on tax compliance decisions Barbara Kastlunger Erich Kirchler Luigi Mittone Stephan Muehlbacher</p>	<p>2) Decisions by novice and experienced mental health clinicians Cilia Witteman L. De Kwaadsteniet Rob Holland Marieke De Vries</p>
<p>3) Need for information, product knowledge & compulsive buying Huiyi Lo Nigel Harvey</p>	<p>3) Strategy-specific gaze patterns in memory-based decisions Frank Renkewitz Jahn, Georg</p>	<p>3) A behavioral evaluation of annuity-based pensions Kevin Keasey Barbara Summers Darren Duxbury Robert Hudson</p>	<p>3) Predicting clinical outcomes the fast and frugal way Mirjam Jenny Thorsten Pachur Lloyd Williams</p>
<p>4) A theory of consumer expectations Fergus Bolger</p>	<p>4) Using eye tracker to examine investor's behavioral biases Tal Shavit Cinzia Giorgetta Yaniv Shani Fabio Ferlazzo</p>	<p>4) Emotions as necessary causes of economic behavior Barbara Summers Darren Duxbury</p>	<p>4) Effects of cognition on satisfaction & enrollment in Medicare Helena Szrek M. Kate Bundorf</p>
<p>5) Risky discounts: Gambling per item versus per purchase B. Kamleitner Mandeep K. Dhani David R. Mandel</p>	<p>5) Judgments relative to patterns Petko Kusev Peter Ayton Paul van Schaik Neil Stewart</p>	<p>5) The Comparative Advantage of Self-Governance Stephan Tontrup Wolfgang Gaissmaier</p>	<p>5) Patients' decisions to engage in safety-related behaviours Rachel Davis Kate Miles Nick Sevdalis Charles Vincent</p>
<p>6) Lay beliefs about prescriptive aspects of decision processes Michaela Huber Leaf Van Boven</p>	<p>6) Choice deliberation depletes self resources Yoella Bereby-Meyer Eliran Halali Anna Kholmer</p>		

Tuesday August 25

17:00-19:00

Palazzo Istruzione

RISK AND RISKY CHOICE	FINANCIAL JDM	CAUSALITY, CONFIRMATION AND DECISION MAKING	SOCIAL ASPECTS IN JDM
<i>Aula Magna</i> Chair: Peter Ayton	<i>Room 4</i> Chair: Doron Sonsino	<i>Room 6</i> Chair: Tommaso Mastropasqua	<i>Room 7</i> Chair: Matthew McCarter
1) Risky choices based on automatic processes Andreas Glöckner Ann-Katrin Herbold	1) Risk presentation format and investment allocations Christine Kaufmann Emily Haisley Martin Weber	1) The influence of causal knowledge on probability judgments Bénédictte Bes Steven Sloman Eric Raufaste	1) The Effects of stereotyping on performance and preferences Norma Schmitt Claudia Vogel
2) The effect of affect on dominance violation in risky choice Andrea Taylor Rob Ranyard	2) The appeal of vague financial forecasts Ning Du David Budescu	2) Evidence search in causal networks: Diverse or diagnostic? David Lagnado Zhenqian Lin Erica Yu	2) Under-achievement and the glass ceiling Robin Hogarth Natalia Karelaia Carlos Trujillo
3) Risky emotions: Effects of emotions on risk taking Mandeep Dhmi Rocio GarciaRetamero	3) Fund Preferences: Economic theory vs. psychological bias Elisabet Hvalgren Henry Montgomery	3) Causal reasoning in repeated decision making York Haggmayer Bjoern Meder	3) Cross-cultural differences in moral emotions and judgments Tomasz Zaleskiewicz Tadeusz Tyszka Anette Hiemisch
4) Rigor in NDM: studying DM with small N's and no statistics Raanan Lipshitz	4) Insurance markets under different types of uncertainty Helen Pushkarskaya Michele Vollaro Jerry Skees	4) Are more risks worse? Causal structures of alternatives Odilo W. Huber	4) The magic of coordination: Can skill break the spell? Anna Kholmer Yoella Bereby-Meyer Simone Moran
5) Vaccine-critical Web-pages and perceiving vaccination risks Cornelia Betsch Frank Renkewitz Tilman Betsch Corina Ulshoefer	5) Investment decision-making and hindsight bias Marco Monti Paolo Legrenzi	5) Influencing expert judgment: Attributions of crime causality Jennifer Murray Mary E. Thomson	5) On the robustness of decision tasks to social desirability Gilly Koritzky Eldad Yechiam
6) Risky decisions and happiness of TV game show contestants Peter Ayton Meri Pesola Lucy Freemantle	6) The Affect of Irrelevant Menus on Perceived Valuations Doron Sonsino	6) Bayesian confirmation by uncertain evidence Tommaso Mastropasqua Katya Tentori Vincenzo Crupi	6) The give-or-take-some dilemma: An experimental investigation Matthew McCarter David Budescu

The effect of exposure to narrow versus broad categories

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We find that exposure to broad versus narrow categorizations in a first task alters categorizing tendencies and decisions in a variety of subsequent and unrelated tasks, from basic cognitive behaviors (e.g., grouping), and consumer decisions (e.g., new product adoptions), to more general decision making strategies (e.g., susceptibility to heuristics). Decision makers previously exposed to a decision context with broad categorizations base their decisions on fewer pieces of information, typically those made salient by the environment. In contrast, decision makers who have previously been exposed to narrow categorizations, rely on multiple pieces of information, both salient and non-salient, without exerting any extra effort. Consequently, decision makers previously exposed to narrow versus broad categorizations were less susceptible to some common context effects, such as the dilution effect (Nisbett, Zukier and Lemley 1981), and decision heuristics, such as the frequency heuristic (Alba and Marmorstein 1987).

Variety seeking for consumable and non-consumable goods

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A preference for greater variety when selecting consumable goods as bundles in simultaneous choice rather than as a sequential series of individual decisions is a consistent result in prior literature. However, digital goods (e.g., music) have a number of important differences from consumable goods (e.g., candy). We address two general research questions. First, we disentangle the role of selecting bundles from the role of simultaneity vs. sequential choice as factors in variety seeking with consumable goods. Second, we discuss the differences between digital and consumable goods and investigate whether variety seeking generalizes to choices of digital goods. Results both clarify the conditions for variety seeking for consumable goods and identify differences in the behavior with digital goods.

Need for information, product knowledge & compulsive buying

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Information search allows consumers to develop knowledge about brands and products. Compulsive buyers tend to purchase certain types of product. However, unlike normal shoppers, they seek little information about them. This may be because they already possess the knowledge they need to make their purchasing decisions. Additionally, compulsive shoppers are particularly concerned with purchasing conspicuous products. The symbolic meaning of highly materialistic products or luxury brands may be viewed by compulsive shoppers as indicative of high social class, high achievement, a good quality of life, and so forth. There are reasons to expect that this effect is moderated by cultural factors. To test these predictions, we conducted two web-based experiments on two populations (Taiwanese and British). Results indicated that, for luxury products, greater product knowledge in compulsive shoppers can explain their reduced need for information. However, for mundane products, compulsive shoppers need less information, whether they have abundant product knowledge or not. Taiwanese compulsive shoppers displayed the symptoms of compulsive buying more saliently than those in the UK.

A theory of consumer expectations

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Expectations regarding the future are central to economic theory as they are presumed to significantly influence the decisions of economic agents - they also have practical implications for forecasting. Three types of expectations have been proposed: Rational (RE's), Adaptive (AE's) and Extrapolative (EE's). RE's are unbiased and formed on the basis of all relevant information, but this approach has largely been discredited by empirical results. AE's are updated in the light of previous forecast errors, but have not been studied extensively and so lack empirical support. Also, although more realistic than RE's in the light of human information-processing limitations, AE's lack psychological plausibility, particularly when it comes to consumer expectations. By the third approach, EE's, expectations are formed using simple judgment heuristics and are applied to very limited data. EE's thus place little burden on cognitive capacity, but are subject to biases such as trend damping and noise simulation. In this paper I formalize an EE theory of consumer

expectations and test it against the alternative theories, RE and AE. The results favour the EE model for naturalistic tasks.

Risky discounts: Gambling per item versus per purchase

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Risky discounts differ from other discounts in that the actual discount level is determined by chance (e.g., “scratch & save” cards). Though hardly addressed in the literature these discounts are actually offered and they have unique theoretical features; such as the possibility to distinguish between offering them per item or per purchase. In 3 studies, we explore whether consumers prefer to receive risky discounts per purchase or per item. Options do not differ with regard to expected value, yet they entail multiple differences (e.g., savings distribution, effort involved) that may influence consumer preference. In all studies, participants preferred per item over per purchase discounts despite normative comparability of options. 3 main reasons for that preference emerged. First, per item discounts are incorrectly perceived to provide better chances to yield an overall high discount and are correctly perceived to provide better chances to avoid an overall very low discount. Second, consumers like to adopt a narrow mindset where they focus on the best outcome in a series of discount gambles. Third, consumers like the increased excitement provided by multiple discount gambles.

Lay beliefs about prescriptive aspects of decision processes

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Normative metacognition, which includes the lay beliefs that people have about prescriptive aspects of decision processes can have a powerful impact on people’s decisions in their everyday life. In three experiments, we show that making these beliefs salient changes the process and the outcome of decisions in three different situational contexts. We examine donation decisions, positions on an environmental policy proposal, and decisions in the domain of romantic relationships. In each of the experiments, lay theories about decisions should be made were made salient by asking participants on which information (feelings versus factual information) they should rely on for any given

decision. When participants thought about their prescriptive lay beliefs before making their decisions, their decision processes and their decision outcomes were more in line with their preferred way of decision making.

Visual attention tracking in decision situations

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People's information processing style (analytical or experiential) may steer their visual attention to the information presented in a decision situation. In two studies employing an eye tracker, we investigated whether cognitive and motivational factors are related to people's visual attention to information in a decision task. In Study 1, we examined visual attention toward a medical risk communication graph, and we related this to the cognitive factor of numeracy. Higher numeracy appeared to be related to more efficient processing of the information and thus to better integration (i.e. analytical processing). In Study 2, respondents' visual attention was measured in a food choice task. Participants were either primed with a health goal to promote analytical processing, or with a taste goal for experiential processing. The health goal respondents seemed to process the information more analytically, focusing, for example, on the nutrition information. The taste goal respondents appeared to process more shallow information (product name, advertisements and pictures). Implications for decision making and health communication will be discussed.

An eye-tracking analysis of decision modes

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Recently, numerous studies comparing intuition and deliberation have been published, but until now relatively little is known about the cognitive processes underlying the two decision modes. Therefore, we analyzed processes of information search and integration using eyetracking technology. We tested hypotheses derived from dual-process models which postulate that intuition and deliberation are completely distinct processes against predictions of interventionist models. The latter assume that intuitive and deliberate decisions are based on the same basic process which is supplemented by additional processes in the deliberate mode. We manipulated decision mode between-participants and participants completed simple and complex city-size tasks. Our findings indicate that the instruction to deliberate does not necessarily increase levels of processing. We found no difference in mean fixation duration and the distribution of short, medium and long fixations. Instruction-induced deliberation led to a higher number of fixations, a more complete

information search and more repeated information investigations. Overall, the data are more in line with interventionist models.

Strategy-specific gaze patterns in memory-based decisions

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In memory-based decision making, information search cannot be observed directly. We report an experiment employing a novel process-tracing method using eye-tracking that may be applicable for investigating memory-based decisions. This exploration is based on findings showing that while remembering information that is no longer visible, people tend to look where the information was before. Thus, gaze patterns might reveal decision strategies that use different amounts of information and access information in different orders. In the experiment, participants learned about cue values of decision alternatives from pictures containing verbal labels. In the decision phase, they performed memory-based binary choice tasks according to spontaneously adopted decision strategies and subsequently according to instructed decision strategies. In this phase, they saw only the pictures without the labels. We recorded participants' eye movements to see whether the spontaneously adopted and instructed strategies would be discriminable in gaze patterns on the now empty pictures. We found that gaze patterns largely conformed to the predictions of different decision strategies.

Using eye tracker to examine investor's behavioral biases

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Contrary to the premise of rational models, which suggest that investors' aggregate portfolio is the appropriate informational asset to evaluate a firm's performance, we find, using an eye tracker, that investors spend more time looking at performances of an individual asset within their portfolio than

at the performances of the overall aggregated portfolio, and at the net value change more than the assets' final value. We also find that investors look at the monetary value change longer than at change in percentages. Specifically, participants look longer at the value change of gaining assets than at the value change of losing assets, mainly within the information variables that are known to be most valuable for investors. We suggest that individuals may be extra cautious when scrutinizing their portfolio, a tendency which may drive investors to ignore information that may be relevant for future decisions. We offer the possibility that investors are not only engaged in judgment when evaluating their portfolio rather may also be predisposed to look for reassuring elements within it. Thus it may be that humans use mental accounting by nature and not necessarily by judgment.

Judgments relative to patterns

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Four experiments study relative frequency judgment and recall of sequentially presented items drawn from two distinct categories (e.g., cities, animals). The experiments show that judged frequencies of sequentially encountered stimuli are affected by certain properties of the sequence configuration. We find (a) a first-run effect whereby people overestimate the frequency of a given category when that category is the first repeated category to occur in the sequence and (b) a dissociation between judgments and recall; respondents may judge one event more likely than the other and yet recall more instances of the latter. Judged frequency of categories of items is influenced by the first run - which may reflect the operation of a judgment heuristic. The distribution of recalled individual items does not correspond to the frequency estimates, indicating that participants do not make frequency judgments by sampling their memory for individual items. We propose a simple strategy whereby respondents use the first run as a cue to frequency that accounts for this observation and other context effects on memory and judgment.

Choice deliberation depletes self resources

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For complex decisions people often deliberate thoroughly over the different alternatives. We suggest, based on Baumeister et al.'s theory of self resources, that deliberation requires not only cognitive effort. This effort depletes self resources and may adversely affect subsequent actions including choice. Seventy participants read information about four apartments of different desirability. They were either asked to choose their favorite apartment after conscious deliberation or were distracted for some time before they chose. As a subsequent self-control task, participants were given a Stroop task. As expected, participants in the unconscious thought condition made less mistakes in the Stroop task, and the total time for the task and RTs for correct responses were on average significantly shorter. The differences in RT remained significant even after controlling for reported mood, success and difficulty of the choice task. While deliberation enables us to weight the pros and cons of each alternative, a recommended process for rationale choice, it also depleted self resources that are necessary for subsequent acts requiring volition, including decision making.

The effect of question wording on inflation expectations

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Public expectations of inflation have been studied by researchers in economics, psychology, and marketing, because of their assumed role in financial decisions, and subsequent effects on actual inflation. Survey-based measures of expectations tend to track official inflation estimates, but overestimations may arise if people pay more attention to price increases than to price decreases. Here, we examine whether commonly used survey questions (asking for expectations about “prices” rather than “the rate of inflation”) may contribute to such overestimations. We randomly assigned 815 respondents in a nationally representative sample to receive questions about expectations for (a) “prices in general,” (b) “prices you pay,” or (c) “the rate of inflation.” Reported expectations were higher for “prices in general” and “prices you pay” than for “the rate of inflation.” Compared to

expectations for “the rate of inflation,” expectations for “prices in general” and “prices you pay” evoked stronger thoughts of specific (increasing) prices, and were more strongly correlated to expectations for prices that had been increasing (rather than decreasing.)

The effect of monetary rewards on

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In tax compliance literature a positive approach to encourage tax compliance is often recommended. The present study examines the effects of high versus low monetary rewards for tax compliance on repeated tax paying decisions. A laboratory experiment was conducted where 86 participants had to decide about paying taxes in 60 tax filing rounds. Participants were randomly assigned to one of three experimental conditions. Beside the control condition, two rewards conditions were conducted, in which participants faced high versus low monetary rewards for audited full tax compliance. Expected values between all three conditions were held constant by varying fine rates for audited tax evasion. Results show that taxpayers in the high reward condition were more often compliant than those in the control condition. Furthermore, an immediate effect of rewards on tax compliance in the following round was found. Taxpayers experiencing an audit and being rewarded for their compliance paid more taxes in the following round compared to audited compliant taxpayers that experienced no rewards. These results highlight the importance of a positive relationship between taxpayers and tax authorities.

A behavioral evaluation of annuity based pensions

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Recent advances have been made in understanding the widespread reluctance of individuals to annuitize their savings at retirement, by drawing on insights from behavioral research to elucidate such behavior. This study extends the existing consideration of behavioral issues in the annuity purchase decision by looking at issues affecting the evaluation of a potential annuity purchase at an

aggregate level (an evaluation of whether the purchase provides value for money), at a disaggregate level (whether the income stream is adequate in meeting the individual's needs) and in terms of the individuals' preferred pattern of future income stream. Our results indicate that annuities do not evaluate well on these criteria, but the results provide insight for policy makers and financial advisors into the issues affecting individuals' evaluations. Account needs to be taken of individuals' preferences, beliefs and decision models in order to inform meaningful policy debate and provide practical financial advice.

Emotions as necessary causes of economic behavior

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The role of emotions in economic and financial decision making is an issue that has received less attention than evaluations of choices under risk (such as prospect theory), cognitive biases and heuristic processes. For a number of behavioral anomalies there are accepted explanations that do not include emotions as important elements, but the lack of influence of emotions in these effects has not been established – might it be that emotions are a necessary cause for such behaviors rather than merely playing a supporting role? In this paper we investigate this issue experimentally, using as an example a robust behavioral anomaly in the finance area; the disposition effect. By manipulating the emotions associated with an investment task we show that specific emotions are necessary causes of this effect. We provide evidence, therefore, that emotions may play a more important role than previously recognized in many economic and financial decisions.

The comparative advantage of self-governance

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Theories ranging from social psychology to behavioral economics suggest that cooperation in social dilemmas is condemned to decline without norm enforcement. In contrast we show that independently of enforcement procedural legitimacy can sustainably stabilize people's willingness to cooperate. In a public goods game, we manipulated procedural legitimacy by allowing subjects to vote on a set of rules or giving them the same rules exogenously. Average contributions to the public good were significantly higher in the voting than in the control condition (85.2% vs. 58.5%; $p < .001$, Cohen's $d = 1.2$). We found fewer defections in the voting condition suggesting a higher

commitment to the group interest driving the effect. Our design excludes alternative mechanisms like signaling, self-selection, choice or influence suggesting that sheer participation is sufficient. Assuming that perceived legitimacy depends on culture, we conducted the experiment in China, since the democratic majority rule is not popular there. We tested in two locations in China as well as in Germany to guarantee the robustness of our results. As hypothesized we did not find a treatment effect in China.

Causal models underlying clinicians' decisions

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We aimed to find out whether mental health clinicians make their decisions based on causal mental models they construct of client information. In one study we used cognitive mapping to see whether causal models drawn by 40 clinicians could predict how effective they believed different interventions to be. In the other study we analyzed think aloud protocols of 20 clinicians to elicit structure and content of their mental causal models, and to see how interventions were related to these models. Results of both studies show that clinicians arrived at idiosyncratic causal models. The cognitive mapping study further showed that these models could predict clinicians' individual judgments of the effectiveness of interventions. However, the complexity of clinicians' causal models as obtained in the two studies differed, which makes it uncertain how complex causal mental models are that clinicians actually construct in practice. We discuss how different methods may induce these different results, and how we may further investigate clinicians' actual decision making processes.

Decisions by novice and experienced mental health clinicians

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Marieke De Vries

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We address the intriguing phenomenon that increasing experience in diagnostic decision making in mental health care does not seem to result in better performance. It seems that experienced

clinicians make their decisions via recall of similar cases, which does not lead to well-calibrated performance since they do not receive feedback about their decisions. They then do not outperform novices, who perform this decision task rather well presumably because the facts and rules they have been taught are still fresh in their memories. In previous studies, experienced clinicians may have been at a disadvantage when they were asked to make a decision deliberately. We tested whether indeed novices perform better when they consciously deliberate about the details and the application of rules, while experienced clinicians perform better when they are asked to decide directly or after performing a distracter task, allowing recognition-based decision making. We also tested whether indeed making diagnostic decisions is accompanied by these two qualitatively different memory representations: details and rules with novices and abstract exemplars with more experienced clinicians.

Predicting clinical outcomes the fast and frugal way

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In 1954, Meehl showed that clinical diagnoses are often less accurate than standard statistical linear models. Research on fast and frugal heuristics (Gigerenzer et al., 1999), showed that simple heuristics (e.g. TTB), can outperform statistical tools (e.g., multiple regression). We investigated how well a fast and frugal decision tree (FFT) performs in a clinical domain compared to clinical diagnoses (DSM-IV) and logistic regression. Based on data of 2000 young women of the “Dresden Predictor Study”, we compared the different models in their ability to predict depression according to the Beck’s Depression Inventory as well as mental health. FFT and logistic regression were fitted on a training set and tested in their ability to predict the criteria one year later. For both criteria the FFT showing the best accuracy as well as the highest discrimination ability consisted of only one of the DSM-IV stem questions. In terms of predictive accuracy, DSM-IV diagnosis showed the best performance, the FFT the worst. In terms of discrimination ability, however, FFT showed a better performance than logistic regression, but overall the diagnosis according to DSM-IV still performed best.

Effects of cognition on satisfaction & enrollment in Medicare

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This study aims to isolate the roles that cognitive ability and cognitive reflection have on influencing satisfaction with and enrollment in a Medicare Part D drug plan. Medicare Part D is the recent solution of the US government to cover seniors with insurance for prescription drugs, however critics claim that the policy is complex and confusing. We did an internet study in which a nationally randomly sample of internet users over 65 years of age had to choose a prescription drug plan from either 2,5, 10, or 16 drug plans. They then had to answer various questions about their choice. We estimate the effects of cognition and cognitive reflection on choice satisfaction and probability of enrollment. We consider choice difficulty, feelings of control, and feelings of being well-informed. We find that individuals with high cognition and cognitive reflection scores are both more likely to enroll than those with lower cognition and cognitive reflection scores. Curiously, we find that those with high cognitive reflection scores are more likely to report being satisfied with their plan, while those with high cognitive ability scores are more likely to report being less satisfied.

Patients' decisions to engage in safety-related behaviours

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The aim of this investigation was to empirically validate the value of the 'Patient Involvement in Safety Model' (PISM) in predicting hospital patients' decisions to participate in a range of key safety-related behaviours. A cross-sectional design was employed. Eighty surgical and medical patients were given a 74 item questionnaire to complete which assessed how different constructs of the PISM (related to patients' beliefs about participation) could predict patients' decisions to participate in safety-related behaviours. The results revealed that the PISM accounted for between 43-77% of the variance in patients' intentions to participate in safety-related behaviours. The constructs of the model that had the greatest overall impact across behaviours were normative beliefs and control beliefs. The results of this investigation are very positive; clearly they suggest that the PISM is a useful model in helping to understand the determinants of the decision making process involved in patients' participation in safety-related behaviours.

Risky choices based on automatic processes

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Many everyday decisions have to be made under risk and can be interpreted as choices between gambles with different outcomes that are realized with specific probabilities. The underlying cognitive processes were investigated by testing six sets of hypotheses concerning choices, decision times, and information search derived from cumulative prospect theory, decision field theory, priority heuristic and parallel constraint satisfaction models. Our participants completed forty decision tasks of two gambles with two non-negative outcomes each. Information search was recorded using eye-tracking technology. Results for all dependent measures conflict with the prediction of the non-compensatory priority heuristic and indicate that individuals use compensatory strategies. Choice proportions are well predicted by a cumulative prospect theory. Process measures, however, indicate that individuals do not rely on deliberate calculations of weighted sums. Information integration processes seem to be better explained by models that partially rely on automatic processes such as decision field theory or parallel constraint satisfaction models.

The effect of affect on dominance violation in risky choice

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Prior research has suggested that positive mood states may increase reliance on automatic rather than deliberative processes (De Vries, Holland & Wittman, 2008). A study was conducted with the aim of a) testing the efficacy of a new method of eliciting positive and negative affect via the use of a gambling task; and b) examining the influence of different mood states on RT, risk seeking and propensity to violate the dominance principle. It was hypothesised that if positive mood states increase reliance on automatic processes then rates of dominance violation should correlate with ratings of Happiness. Ratings of Happiness before and after the affect elicitation procedure indicated that the task was effective at inducing small changes in mood. It was also found that while initial ratings of Happiness correlated negatively with adherence to dominance, 'Change in Happiness' between initial ratings of Happiness and ratings of Happiness following the affect elicitation procedure correlated positively with adherence to dominance. The possibility that incidental mood states may affect choice processes in a different manner to task-induced mood states is therefore considered.

Risky emotions: Effects of emotions on risk taking

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Risk taking can adversely impact peoples' health, safety, and well-being. According to the "risk as feelings" hypothesis (Loewenstein et al., 2001), risk taking may be influenced by experienced and anticipated emotions. In Study 1, we examined the effect of experiencing specific positive and negative emotions (i.e., happiness, excitement, sadness, and disgust) on youth perceptions of the importance and probabilities of potential benefits and drawbacks of a risky driving behaviour, and their forecasted engagement in this behaviour. In Study 2, we examined the effect of anticipating these emotions (plus regret) on youth risk perceptions and forecasted risk taking. We found that emotions have a greater impact on perceived probabilities than perceived importance of outcomes. Positive and negative emotions have a systematically different impact on perceived probabilities and on forecasted risk taking. Similarly, experienced and anticipated emotions differ in their impact on risk perceptions and forecasted risk taking. Our findings have implications for theories of risk perception and risk taking, as well as for risk prevention strategies.

Rigor in NDM: Studying DM with small N's and no statistics

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Addressing concerns regarding absent or lax rigor in Naturalistic Decision Making (NDM) studies. The paper argues that these concerns are typically embedded in the quantitative/experimental paradigm; as this conceptualization is irrelevant to NDM's inquiry-guided/qualitative paradigm, the concerns are unwarranted. To redress this category mistake (discussing entity A in terms appropriate to a qualitatively different entity B), the paper conceptualizes rigor inclusively as "the disciplined application of reason to subjects related to knowledge and/or communication" (Allende, 2004); differentiates this broad conceptualization into a substantive facet that is common to all paradigms (i.e., "the judicious selection and application of methods in order to maximize the probability of producing trustworthy answers to the study's questions under the constraints imposed by its context), and a technical facet (the strict application of correct or prescribed methods) that admits paradigm-specific distinctions. Finally, the paper presents a set of appropriate guidelines for

optimizing and evaluating the rigor of theoretical and empirical Inquiry-guided qualitative NDM studies.

Vaccine-critical web-pages and perceiving vaccination risks

Cornelia Betsch, Frank Renkewitz, Tilmann Betsch & Corina Ulshoefer

University of Erfurt

The Internet contains lots of vaccine-critical information and is assumed to be increasingly influential in the decision against immunization. According to theories of protective health behavior, the perception of risk is related to the omission and commission of preventive actions, such as vaccinations. This study tests the implied relation between vaccine-criticism on the Internet and perceptions of the riskiness of vaccinating. In a large-scale Internet study we manipulated the information environment (typical vaccine-critical page, control page, and both) and the focus of search (focusing on the assumption that (not) vaccinating is risky, no specified focus). Accessing vaccine-critical pages increased the perception of risk of vaccinating and decreases the risk of omitting vaccinations independent from the search focus. In line with the ‘risk-as-feelings’ approach, the affect elicited by the vaccine-critical pages influenced the changes in risk perception. An individual inclination towards intuition accentuated this effect. Intentions to vaccinate significantly decreased after searching the vaccine-critical page and when participants focused on the vaccination risks.

Risky decisions and happiness of TV game show contestants

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Here we explored how the happiness of TV game show contestants varies as a function of their monetary winnings - and the money that they discover that they could have won if they had chosen differently. The TV game show “Deal or No Deal enables us to study the effects on emotions of outcomes from simple well-defined risky decisions involving real large stakes not used in experiments. We present data from three studies that evaluate the rated and reported happiness of real contestants. Unsurprisingly, the happiness of contestants was influenced by the amounts of money that they won. However the happiness of contestants was strongly moderated by the magnitude of the discrepancy between winnings and the amount they could have won had they chosen differently. Different kinds of counterfactual outcomes had different effects: forgone winnings that contestants declined in a failed search for higher winnings hurt more than wins missed because they chose a riskless amount rather than gamble. Our result confirms the notion that

people do not judge outcomes independently of their context - a result which has considerable economic significance when it comes to the human reaction to money.

Risk presentation format and investment allocations

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Emily Haisley

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Martin Weber

University of Mannheim

One of the most important financial decisions is how much risk to bear in a investment portfolio. Previous research demonstrates that different presentation formats influence risk perception. We examine how different types of presentation - numerical descriptions, experience sampling, graphical displays of distributions, and a combination – influence investment decisions. Participants viewed information about a risky and a risk free fund and made an initial portfolio allocation. Next they received information about the allocation's riskreturn profile and could revise the allocation. The description condition resulted in significantly less risky allocations, while the experience and combination conditions in significantly riskier allocations. Examination of the difference between initial and final allocations revealed that people became significantly more risk seeking and more confident in the experience and combination condition, indicating that portfolio sampling increases risk-taking. Additionally, we find no evidence that people were more dissatisfied with poor outcomes in these conditions and even tended to accept even more risk in a subsequent allocation decision.

The appeal of vague financial forecasts

Ning Du

DePaul University

David Budescu

Fordham University

Management earnings forecasts are an important source of information for investment decisions. We examined earnings forecasts made by corporate managers. We observed a clear preference, and documented higher hit rates, for range forecasts. Our analysis indicates that managers' decisions about the format of the forecasts are driven by their perception of the imprecision of the situation. We also investigated investors' perception of forecasts. Respondents were more confident when

they received range forecasts, and expected them to be more accurate, informative and credible. These results support the hypothesis that investors prefer imprecise information if it matches the perceived underlying vagueness.

Fund preferences: Economic theory vs. psychological bias

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Preferences for mutual funds were studied as a function of fee, historical return and risk information. A total of 125 participants (55 laypersons, 31 experienced investors, 33 professionals) were given a questionnaire asking them to state their order of preference among eight funds. Based on economic theory, fee was expected to be a more important factor for fund preferences than last year's historical return. Low risk should be preferred to high (everything else kept equal), an assumption that underpins all economic theory on risk preferences. Psychological theories of judgmental biases and framing effects would predict that historical return is of greater importance than fee, and that risk will interact with expected losses or gains. For all participant groups historical return was the dominating factor, followed by fee. Risk played a subordinated role for the preferences. The strong impact of historical return suggests that availability and representativeness biases play an important role for fund preferences, although fee and risk were more important for professionals, which is in line with economic theory.

Insurance markets under different types of uncertainty

Helen Pushkarskaya, Michele Vollaro & Jerry Skees

University of Kentucky

The goal of our study is to investigate how different types of uncertainty affect the supply side of the insurance market. We build on the work of Kunreuther and Hogath, (1992) and Cabantous (2006) and to the previously used types of uncertainty—risk, ambiguity, and conflict -- we add sample space ignorance (SSI; the environment where the decision makers are clearly aware that they don't have full information about possible outcomes; Smithson, 1996). Similarly to Cabantous (2006), we ascertain whether actuaries think that any insurance in this specific environment can be offered at all. Finally, keeping in mind a comparative ignorance hypothesis (Fox and Tversky, 1995), we offer to each subject only one scenario. Our preliminary results indicate that insurers on averages assign the highest insurance premiums in the conflict environment, but that under ignorance environment they are more likely to refuse to offer any insurance at all.

Investment decision-making and hindsight bias

Monti Marco

Max Planck Institute for Human Development, Berlin

Paolo Legrenzi

IUAV Venice

We investigated the relationships between investment decision making and hindsight bias. Economic studies consider the agent's foresight perspective only, without taking into account the hindsight bias possible effects in the decision-making process. We studied the subject's overall perceived error by focusing on the causal relations between the estimate and memory errors and by analyzing his confidence in estimates and memories, therefore, his metacognitions. We found strong evidence for the consequences that hindsight bias can have on the investor's portfolio decisions: the portfolio allocation perception and therefore, the risk exposure.

The affect of irrelevant menus on perceived valuations

Doron Sonsino

College of Management

We run 3 experiments to test if the level of prizes in the menu has a positive (anchor) or negative (contrast) effect on the perceived valuation of designated objects. Familiar field prizes, and binary lotteries over such prizes, are placed within "more-expensive" and "lessexpensive" menus. Subjects fill-in a sequence of binary choice problems to reveal their preference between given cash and the designated prize in each menu. Between-subject comparisons reveal that the prize-level in the menu positively affects perceived valuations in spite of procedural attempts to rule out menu-dependent preferences and prohibit experimenter bias. The effect also shows within-subject in auction pricing experiments. The price that subjects are willing to pay for a given monetary lottery significantly increases with the average prize-level in the menu of irrelevant payoffs. The bias even manifests when subjects are led to choose the target lottery, independently, from the underlying menu.

The influence of causal knowledge on probability judgment

Bénédicte Bes

Université de Toulouse

Steven Sloman

Brown University

Eric Raufaste

Université de Toulouse

This study investigates the role of causality in probability judgment. We argue that people tend to rely on causal knowledge when they assess the probability of a hypothesis over and above the evidential support for the hypothesis. Our claim is that, holding degree of evidential support constant, a change in the causal structure between the evidence and the hypothesis will change the perceived probability of the hypothesis. In a questionnaire, participants were told that three variables were positively correlated and that this could be explained by the existence of causal relationships among the variables. They had to judge the probability that one variable was high knowing that another variable was high too. The causal structure relating evidence to hypothesis was varied. Results indicate that the probability of the hypothesis was higher when the evidence was on a causal path leading to the hypothesis than when they merely shared a common cause. Concerning causal chain structures, the probability was higher when the chains were direct than when they were non-direct. We also observed that predictive inferences led to a higher perceived probability than diagnostic inferences.

Evidence search in causal networks: Diverse or diagnostic?

David Lagnado, Zhenqian Lin & Erica Yu

University College London

How do people search for evidence in causal networks? In the absence of explicit probabilistic information, it has been claimed that people prefer diverse evidence (Kim et al, 2008). However, this diversity effect is explicable by optimal data selection in Bayesian networks. Two studies use crime investigation scenarios to explore this question. In Study 1 subjects read about a street crime for which a suspect is apprehended. Four witnesses claim to have seen the culprit running from the crime scene, two at location A and two at location B. Given that one witness at A claims to identify the suspect, subjects must choose whether to interview another witness at A (proximal) or one at B (diverse). When the locations were equally diagnostic the diverse witness was preferred. However, when location A was more diagnostic than B, the proximal witness was preferred. This pattern of choices is predicted by a standard measure of information gain derived from the subjects' stated

probability judgments. Study 2 replicated these findings using a new scenario that varied the diagnosticity of the time of the reported events. Both studies support the rationality of people's search for evidence.

Causal reasoning in repeated decision making

York Hagmayer

Department of Psychology, Georg-August University Goettingen

Bjoern Meder

Max-Planck-Institute for Human Development

Many decisions refer to actions that have a causal impact on the world. The resulting consequences provide feedback allowing people to learn not only about expected values but also about the causal structure of the decision context. Knowledge about causal structure in turn enables rapid adaption to changes in the environment, e.g. novel options. Nevertheless most theories of decision making neglect causal knowledge. By contrast, causal decision making theories (e.g., Sloman & Hagmayer, 2006) assume that people represent the causal structure underlying a decision problem and use the causal model to envision the consequences resulting from choice. In a series of studies we investigated the representations people acquire when making repeated decisions in order to maximize an outcome value. The results show that (i) people use initial causal hypotheses to learn from outcome feedback, (ii) they revise causal models depending on feedback, (iii) they spontaneously start to induce a causal model of the decision context without being probed to do so, and – most important – (iv) they use causal model representations to adapt their choices to changes in the decision problem.

Are more risks worse? Causal structures of alternatives

Odilo W. Huber

Department of Psychology, University of Fribourg

Four experiments investigate the influence of the number of different possible causes for negative consequences (risks) on information search and decision in quasi-naturalistic scenarios. It was expected that number of risks add information and simpler alternatives with fewer risks are preferred if total risk probabilities are equal. After a short scenario description, participants searched information and decided. One alternative had one risk with probability p while the other one two with $p/2$ each. Experiments 1 and 2 initially did not present probabilities. A large majority choose the one-risk alternative with information search being concentrated on it, and only a minority actively searched for probabilities. Experiment 3 initially presented probabilities but still a

majority chose the one-risk alternative. In contrast, in experiment 4 with lowered probabilities for the two-risk alternative ($<p/2$) it was preferred. The research demonstrates the high spontaneous attractiveness of a simple risk structure of alternatives. Multiple risks are only preferred if both (1) probabilities are initially presented, and (2) these are clearly better.

Influencing expert judgment: Attributions of crime causality

Jennifer Murray & Mary E. Thomson

Glasgow Caledonian University

The present research aimed to investigate the possible effects of attribution on expert clinical judgment in comparison to that of semi-experts and lay-people. A 3x3x2 mixed groups design was implemented, with the variables: clinical experience (expert, semi-expert and lay-person), crime type (murder, assault and armed robbery) and scenario manipulation (internal/external attribution). Participants read 9 vignettes which were developed from real case notes and supplemented with information on specific offender characteristics, and that were either internally or externally manipulated. Participants were blind to this manipulation. For each scenario, participants were asked to rate offender dangerousness, offender responsibility and the seriousness of the crime and to suggest a suitable sentence length. Preliminary findings indicate that semi-experts are less subject to the influence of attributional manipulations than both experts and lay-people. Also, marked similarities in the pattern of expert and lay-person judgments can be observed from the analyses. These findings suggest that on-going debiasing training may help to decrease attribution errors in clinical decision making.

Bayesian confirmation by uncertain evidence

Tommaso Mastropasqua, Katya Tentori

University of Trento

Vincenzo Crupi

Department of Arts and Design, University of Venice

Recent studies suggest that people are quite accurate in evaluating inductive confirmation in situations where the evidence provided is certain. However, in many real settings, the evidence available is not certain, and the psychology of confirmation by uncertain evidence appears to have remained unexplored so far. The present study extends previous research to investigate how people judge the impact of an uncertain piece of evidence on a given hypothesis. The weak correlations between the confirmation estimates and the posterior probability estimates indicate that participants appropriately distinguished posterior probability from evidential impact. On the other hand, the

strong correlations between the confirmation judgments expressed by participants and the confirmation judgments predicted by two normatively sound measures of confirmation suggest that people are appropriately sensitive to the degree of evidential uncertainty. Indeed, judgments of evidential impact seem to be accurate even when the evidence is affected by a given degree of uncertainty.

The effects of stereotyping on performance and preferences

Norma Schmitt & Claudia Vogel

European University Viadrina

Discrimination, differences in ability and preferences are standard economic explanations for occupational gender segregation in the labor market. Our analysis focuses on the role of positive and negative stereotypes in determining occupational self-selection. A “stereotype threat” refers to the potential risk of confirming assumed third party expectations of underperformance, so that affected individuals suffer intellectual performance reduction. In contrast to that, negatively stereotyped individuals may try to avoid errors, i.e. they become more accurate. Whereas positively stereotyped individuals focus on approaching the proposed gains and become more rapid. Because of those psychological mechanisms, positive stereotypes lead to underperformance, whereas negative stereotypes determine a better performance. Using experimental methods, we can show that positively and negatively framed stereotype threat causes gender differences in performance, effort and preferences for competition.

Under-achievement and the glass ceiling

Robin Hogarth

ICREA & Universitat Pompeu Fabra, Barcelona, Spain

Natalia Karelaia

INSEAD

Carlos Andrés Trujillo

Universidad de los Andes, Bogotá, Colombia

We use the first season of a Colombian TV game show (“El Ganador”) to test gender differences in competitive behavior where there is no opportunity for discrimination and females face no gender-specific external constraints. Each game started with six contestants who had to answer general knowledge questions in private. There were five rounds of questions and, at the end of each, one participant was eliminated. Despite equality in starting numbers, we find that women earn less than men and exit the game at a faster rate. In particular, there are more voluntary withdrawals by

women than men. We conclude by drawing an analogy between the game and the process by which employees rise through the levels of a corporation. As such, our results suggest that one reason for “glass ceilings” lies in women’s own behavior. At the same time, we advocate care in interpreting our results and the need to identify which socialization processes might lead to this behavior.

Cross-cultural differences in moral emotions and judgments

Tomasz Zaleskiewicz

Warsaw School of Social Psychology

Tadeusz Tyszka

Leon Kozminski Academy

Anette Hiemisch

Department of Psychology, University of Greifswald

The goal of this paper was to test whether people from Poland and Germany make moral judgments in accord with deontological or consequentialistic position and to study crosscultural differences in affective reactions to immoral actions. In Study 1 we asked participants to make affective judgments of behaviors violating moral norms. In Study 2 we used the same moral dilemmas as in Study 1, but this time we manipulated the values of two basic risk parameters: moral consequences and their probabilities. Participants’ task was to make moral judgments for all scenarios. The comparison of judgments between participants from Poland and Germany showed that they did not differ in self-oriented affective judgments, but did differ in others-oriented affective judgments: Polish participants revealed stronger affective reactions than German participants. Results related to moral judgment showed that: participants from Poland made harsher moral judgments than participants from Germany; judgments made by Polish participants differed across scenarios but such differentiation has not been found in the German sample; judgments of German participants tended to be more consequentialistic.

The magic of coordination: Can skill break the spell?

Anna Kholmer, Yoella Bereby-Meyer & Simone Moran

Ben Gurion University

Consequences of many decisions depend on the choices of others. Consider the decision whether to major in a subject that currently has high demand, rather than in a less demanded one. Majoring in the high demand subject is optimal as long as not too many other students chose it. This decision requires tacit coordination. In real world settings, people often do not coordinate well, and judgments of others' are often biased. Conversely, strong patterns of tacit coordination emerged in

numerous experimental settings. Previous studies suggested that part of this discrepancy may be due to overconfidence. The study focuses on the influence of feeling skillful on the tendency to coordinate in a lottery selection task. 160 participants chose between high and low prize lotteries, in which entry into the final prize raffle was either related to or unrelated to skill. Although the choices were made without communication, results revealed perfect coordination. However, in the skill condition the tendency to choose the attractive lottery was related to participants' relative skill estimation. Implications for coordination games and for competitive settings in general will be discussed.

On the robustness of decision tasks to social desirability

Gilly Koritzky & Eldad Yechiam

Technion – Israel Institute of Technology

The sensitivity of decision tasks to social desirability can have large implications on their validity in predicting real-world risk taking. Two types of decision tasks were compared for their sensitivity to socially desirable responding: Description-based tasks, in which decision makers receive full information about potential outcomes and their probabilities, and Experience-based tasks, in which these properties are initially unknown. In an experimental study, 108 participants completed a battery of decision tasks in two conditions: a Control condition in which payoffs depended solely on performance, and an Impression condition in which payoffs depended on favorably impressing a board of potential employers. A preliminary study suggested that in this context, the requirement to make a good impression would lead to less risk taking than found in the Control condition. The results of the main study confirmed this hypothesis, and revealed a distinction between the two types of tasks: only the description-based task was affected by the Impression manipulation, while the experience-based tasks were fairly robust to it.

The give-or-take-some dilemma: An experimental investigation

Matthew McCarter

University of Illinois

David Budescu

Fordham University

We consider a new social dilemma where environmental and social uncertainty are induced by the actors' behavior. This is implemented in a social dilemma where actors choose to give or to take resources from a shared resource pool: a Give-Or-Take-Some dilemma. Actors choosing to give face a public good dilemma with an uncertain provision point, while those who choose to take face

a commons dilemma with an uncertain resource pool. Our study examined the effects of several factors on resource allocation behavior, inefficiency, and inequality. We posited that: As group size increases the group's ability to provide the common good and achieve efficiency decreases, and its ability to reduce inequality decreases. As bonus size increases the group's ability to provide the common good and to decrease inequality increases, and efficiency decreases. As asymmetry increases the group's ability to provide the common good and achieve efficiency decreases, and inequality decreases. Most hypotheses were supported: Group size consistently influenced provision, inefficiency, and inequality; asymmetry influenced inefficiency and inequality; and bonus size only affected the provision rate.

ORAL PRESENTATIONS

Wednesday August 26

10:30-12:30

Palazzo Istruzione

<p style="text-align: center;">Wednesday August 26 10:30-12:30 Palazzo Istruzione</p>			
MEMORY AND DECISION	JUDGMENT CALIBRATION - JUDGMENT - ENDOWMENT	PRESENTATION AND INFORMATION IN DECISIONS	PLANNING, ADVICE AND POLICY
<p><i>Aula Magna</i> Chair: Erica Yu</p>	<p><i>Room 4</i> Chair: Serge Blondel</p>	<p><i>Room 6</i> Chair: Neda Kerimi</p>	<p><i>Room 7</i> Chair: David Comerford</p>
<p>1) Exemplar-based decisions from memory Arndt Bröder Ben Newell</p>	<p>1) Desired level of confidence: Reliability and validity Marc Jekel Arndt Broeder Anatina Trakowski Katja Kerstin Schneider Katrin Janes Naddine Nett</p>	<p>1) In defaults we trust Michael Liersch Craig McKenzie</p>	<p>1) Pitfall or Scaffold? Anchoring effect in planning decisions Eliran Halali Yoella Bereby- Meyer David Leiser</p>
<p>2) A decision time analysis of the recognition heuristic Rüdiger F. Pohl Benni E. Hilbig</p>	<p>2) A calibration study of an intelligence assessment division David Mandel Alan Barnes John Hannigan</p>	<p>2) Contrasting competing theories on the ratio bias phenomenon Kimihiko Yamagishi Yoko Kouno</p>	<p>2) Unpacking can reduce task completion time estimates C. Hadjichristidis Nicola Fenner Barbara Summers Kevin Thomas</p>
<p>3) From recognition to decisions: A model competition Julian Marewski Wolfgang Gaissmaier Lael Schooler Daniel G. Goldstein Gerd Gigerenzer</p>	<p>3) True overconfidence Christoph Merkle Martin Weber</p>	<p>3) Personality, numeric format, and environmental sustainability Carlotta Zorzi Enrico Rubaltelli Rino Rumiati</p>	<p>3) Role taking: Idealistic advice and pragmatic choice Ronit Montal Rachel Barkan Shai Danziger</p>
<p>4) Decisions from experience, black swans, and diversification Ido Erev</p>	<p>4) Outcome and predictor density in contingency judgments Florian Kutzner Klaus Fielder</p>	<p>4) Graininess, similarity and decision making Zur Shapira Christina Fang Amitav Chakravarti</p>	<p>4) Problems of policy capturing: A dim light in a big black box Jan K. Woike Ulrich Hoffrage Ralph Hertwig</p>
<p>5) Modes of cognitive control in judgment & decision making Edward Cokely Paula Parpart</p>	<p>5) Providing multiple units reduces the endowment effect Burson, Katherine David Faro Yuval Rottenstreich</p>	<p>5) When and for whom more information is harmful? Adi Amit Lilach Sagiv</p>	<p>5) Cognitive behavioral valuation David Comerford</p>
<p>6) Know your bandit: Model-based learning for gambles Erica Yu David Lagnado Nick Chater</p>	<p>6) Doubt, endowment effect and preference reversal Serge Blondel Lévy-Garboua, Louis</p>	<p>6) Fast & frugal vs. logistic regression competition redux Neda Kerimi Henry Montgomery Lars Backlund Ylva Skåner</p>	

Exemplar-based decisions from memory

Arndt Bröder

University of Bonn

Ben Newell

University of New South Wales

Multi-attribute decisions can be accomplished by rule-based integration of attributes. If bivariate attribute-criterion relations are hard to extract from the environment, participants may shift to an exemplar-based strategy: Judgments are achieved by retrieving criterion values of similar decision objects encountered before (Juslin et al., 2008). Persson and Rieskamp (2009) investigated exemplar-based processing in decisions that involve retrieval of cues from long-term memory, and they found no support for a strategy shift. This failure to find exemplarbased processing might be caused by a cue format which encouraged cue abstraction. In 2 experiments, participants accomplished a memory-based judgment task. In one condition, cues were either present or absent (replication of Persson's and Rieskamp's study), whereas in a formally identical other condition cues were always present, but either critical or uncritical. There was evidence for much more exemplar-based processing in the second experimental condition, corroborating the hypothesis about the moderator variable "cue format".

A decision time analysis of the recognition heuristic

Rüdiger F. Pohl & Benni E. Hilbig

CDSS Graduate School Mannheim

As part of the adaptive toolbox notion of decision making, the recognition heuristic (RH) claims that the decision process in comparative judgments – and its duration – are determined by whether recognition discriminates between objects. By contrast, alternative models have recently been proposed which predict that choices largely depend on the amount of evidence speaking for each of the objects and that decision times thus depend on the evidential difference between objects. We present three experiments that tested predictions derived from the RH against those from alternative, evidence-based, models. All experiments used naturally recognized objects without teaching participants any information, thus providing optimal conditions for application of the RH. However, results supported the alternative models and often conflicted with the RH. Recognition was not the key determinant of decision times, whereas differences between objects with respect to (both positive and negative) evidence predicted effects well. In sum, alternative models which allow for the integration of different pieces of information may well provide a better account of comparative judgments.

From recognition to decisions: A model competition

Julian Marewski, Wolfgang Gaissmaier, Lael J. Schooler

Max Planck Institute for Human Development

Daniel G. Goldstein

London Business School

Gerd Gigerenzer

Max Planck Institute for Human Development

The recognition heuristic is a strategy for inferring which of two alternatives has the larger value on a distal criterion. According to it, recognized alternatives are likely to score higher. Initial experiments suggested that people rely on this noncompensatory heuristic, basing inferences solely on recognition. Later, several authors observed that fewer inferences are consistent with it when cues that contradict recognition are available. From such findings they concluded that there was no evidence for a noncompensatory use of recognition but clear evidence that recognition is integrated with other cues. Surprisingly, however, in no study—including our own— this alternative hypothesis, namely a compensatory integration of recognition, was ever formally specified. In 6 studies, we formally specify a range of models as alternative hypotheses to the recognition heuristic, including models that operate on retrieval fluency. Moreover, we re-formulate the heuristic for tasks with multiple alternatives, showing how it can generally aid decision making as a mechanism for consideration set identification. In 8 model comparisons, the heuristic predicts most people's inferences best.

Decisions from experience, black swans, and diversification

Ido Erev

Technion, Israel

Analyses of the current financial crisis distinguish between two classes of likely contributors to the problem: A problematic incentive structure (that motivated managers to take excessive risk), and cognitive biases. Surprisingly, many economists (e.g., Becker, 2008) believe that the cognitive contributors are more important. Taleb (2007) refers to this assertion as the black swan effect, and notes that it is consistent with the tendency to underweight rare events in decisions from experience documented by Barron & Erev (2003). The main goal of the current paper is to evaluate and clarify this assertion. The paper starts with a review of experimental studies that examines the conditions that lead to underweighting of rare events. The second part highlights another way in which basic properties of decisions from experience could contribute to the crisis. It shows that experience can lead to costly underdiversification.

Modes of cognitive control in judgment & decision making

Edward Cokely & Paula Parpart

Max Planck Institute for Human Development

How is cognitive control used to regulate judgment and decision making? Theoretically, the leading framework emphasizes late correction cognitive control. When cognitive control is not used for rule based processing (e.g., computing the logical answer), it is assumed to monitor and correct the output of automatic processes. In three experiments, we examine some surprising judgments that reveal an influential and currently neglected mode of cognitive control (i.e., early selection). Experiment 1 examined a bias that occurs when price estimations are made in the presence of unfamiliar money. Paradoxically, the use of more controlled cognition (as measured by the cognitive reflection test) predicted a large nonnormative bias (more devaluation). Experiment 2a/2b investigated the influence of name fluency on stock profit estimations. Paradoxically, more controlled processing was associated with more reliance on the ease of company name pronunciation for profit estimations. Theoretically, results provide more evidence on the existence and influence of an early selection mode of cognitive control (Cokely & Kelley, 2009). Implications for dual systems theory will be discussed.

Know your bandit: Model-based learning for gambles

Erica Yu, David Lagnado & Nick Chater

University College London

We demonstrate that slot machine players can learn to recognize negative expected value gambles and avoid future losses, with learning influenced by initial beliefs about the game. We argue that this evidence supports a model-based approach to learning in sequential gambling tasks. Subjects played computer simulated slot machines with unknown stationary payout processes. Machines appeared identical but had different payout distributions, matched for expected value but differing on the presence of a “peak” (high value and low probability) payout and variance. In Experiment 1, subjects with experience converged to normative standards while subjects with little experience made poor judgments with a bias in favor of distributions with peaks. In Experiment 2, subjects given accurate initial beliefs about the payout processes made accurate judgments while those with no or incorrect information made poor judgments. When using an appropriate model acquired from instruction or experience, subjects made accurate judgments and optimal choices. In the face of no information about the machines, subjects used misleading cues from the observed distribution to inform their models.

Desired level of confidence: Reliability and validity

Marc Jekel, Arndt Broeder, Anatina Trakowski, Katja Kerstin Schneider,
Katrin Janes & Naddine Nett

Allgemeine Psychologie 1, Universitaet Bonn

People terminate search for information in decision making dependent on the validity of information. In a novel paradigm - the Desired Level of Confidence (Hausmann & Laege, 2008) - a threshold of desired confidence in information can be measured for each person. In case the validity of a cue is above the threshold, the search for information is stopped. In case the validity of a cue is below the threshold, the search for information is continued. Following the point of view that the Desired Level of Confidence (DLC) possesses trait characteristics, we administered the test-retest reliability – i.e. temporal stability of the DLC - and the construct validity – i.e. coherence of the DLC with established indicators of behavioral patterns in decision making. Participants were asked to work on the same decision problems in two sessions with a one-week interval. For each session, participants' DLC, measures of process tracing and Maximum Likelihood strategy classification were administered. The results indicate high test-retest reliability and limited construct validity.

A calibration study of an intelligence assessment division

David Mandel

DRDC Toronto

Alan Barnes & John Hannigan

International Assessment Staff (PCO)

In cases where predictive intelligence assessments are assigned with degrees of probability, two methods for evaluating analytic integrity are to measure the calibration and discrimination of these judgments. A set of judgments is well calibrated when the relative frequencies of events assigned to various subjective probability intervals correspond to the values of those intervals. A set of judgments shows good discrimination when the assessments rendered utilize the range of the scale and avoid clumping near the value of the base rate. An externally valid study of 580 predictive judgments drawn from 21 official Intelligence Memoranda produced by strategic intelligence analysts working in the Middle East and Africa Division of the International Assessment Staff (a Canadian intelligence organization) over an 18-month period was conducted. The findings revealed a high degree of calibration ($CI = 0.014$) and good discrimination ($ANDI = 0.58$). Approximately 90% of predicted events were correctly classified. Calibration, moreover, was not influenced by analyst experience. The putative causal bases for the unusually high degree of judgment quality by experts are discussed.

True overconfidence

Christoph Merkle & Martin Weber

University of Mannheim

This study experimentally shows that people hold beliefs about their skills and virtues in different domains that are inconsistent with rational information processing. Instead, their probability assessments to belong to certain quantiles of a distribution closely follow the classic appraisal of overconfidence. This result addresses recent concerns with the methodology to diagnose the better-than-average effect, a specific form of overconfidence. We claim that although these objections are theoretically valid, their practical consequences remain limited.

Outcome and predictor density in contingency judgments

Florian Kutzner & Klaus Fielder

University Heidelberg

Recently, the outcome density effect has been reinterpreted within the signal detection framework as a shift in the response criterion towards contingency-present responses (Allan, Siegel, & Tangen, 2005). We apply this reasoning to pseudocontingencies, i.e. the tendency to infer a contingency based on jointly skewed base rates (Fiedler, Freytag & Meiser, 2009). In two experiments, participants make dichotomous decisions about the strength of the cooccurrence of two geometric figures that are contingent to varying degrees. In the first experiment, we manipulate whether outcome and predictor base rates are jointly skewed or evenly distributed. We find that skewed base rates shift the response criterion towards contingency-present responses. In a second experiment, we independently manipulate the skew of outcome and predictor base rates. We find that a skew in the outcome, but not the predictor base rate shifts the response criterion towards contingency-strong responses. However, the joint skew further intensifies the shift. We conclude that a criterion shift is one possible mechanism for the influence of jointly skewed base rates on contingency judgments under uncertainty.

Providing multiple units reduces the endowment effect

Katherin Burson

University of Michigan

David Faro

London Business School

Yuval Rottenstreich

New York University

We find that participants given one unit of a good (e.g. one chocolate) show an endowment effect, but that participants given multiple units (e.g., ten chocolates) do not. We suggest that holding multiple units minimizes attachment; previous authors argued that holding cash or exchange goods attenuates loss aversion by minimizing attachment or that market experience does so. Furthermore, giving participants a single, well-defined unit yields an endowment effect, no matter how inclusive the unit. Participants given one box of chocolates show an endowment effect, though the box contains ten chocolates, and participants given ten separate chocolates show no endowment effect.

Doubt, endowment effect and preference reversal

Serge Blondel

Granem - University of Angers

Louis Lévy-Garboua

CES, UNiversity of Paris 1

We exhibit three non-standard cases of preference reversal (PR) between choices and valuations of bets. The endowment effect arises as a surprising consequence of the WTA/WTP disparity when the probabilities of winning get close to certainty. We consider a new theory of choice under risk, doubt theory (DT), which can predict both standard and nonstandard cases of PR, the WTA/WTP disparity and the endowment effect in the context of single choices. The experimental results strongly support DT predictions with a single parameter added to risk aversion, reject the regret theory explanation for PR and the loss aversion explanation for the endowment effect.

In defaults we trust

Michael Liersch

New York University (Stern)

Craig McKenzie

University of California, San Diego (Rady)

Recent research suggests that default effects are caused, in part, by people's perception that default options are implicit recommendations. Seen this way, trust may matter: People may be more likely to opt out of a default option if they do not trust the default's source (i.e., the individual or group responsible for setting the default option). Experimental results support this hypothesis: When a new company was introduced to participants by an established company, participants adhered to default options associated with the new company (e.g., "send me product updates") when trust in the established company was high, but not when it was low. A second experiment showed that when participants had previously been deceived in an unrelated task, they not only failed to adhere to default options, but in some cases participants rejected the default options altogether. Reputational influences on default effects should be considered when establishing default options.

Contrasting competing theories on the ratio bias phenomenon

Kimihiko Yamagishi & Yoko Kouno

Tokyo Institute of Technology

We compare and contrast competing predictions pertaining to the ratio bias in choice. Denes-Raj and Epstein's (1994) participants chose between "9-out-of-100" and "1-out-of-10" chances. The payoff was either a gain or a loss of cash reward. In the choice for gains, the participants irrationally chose the 9% chance gamble, whereas for losses, they rationally chose the 9% gamble. We argue here that, in an affect-rich context, CEST (Denes-Raj's theory) and Slovic et al's (2002) "affect heuristic" lead to different predictions. CEST assumes two systems, rational and intuitive. CEST claims that the irrationality in for gains and rationality for losses stem from the intuitive and rational systems, respectively. In turn, the affect heuristic emphasizes the role of quick and automatic affective reaction to guide preference construction. Therefore decision makers would constantly choose more of the likable objects and fewer of the aversive objects regardless of probabilities they represent or payoffs. In our experiment, undergraduate participants in humanity majors followed the prediction from the affect heuristic, whereas engineering majors adhered to rational choice.

Personality, numeric format, and environmental sustainability

Carlotta Zorzi, Enrico Rubaltelli & Rino Rumiati

University of Padova, Italy

The aim of this research is to analyze the role that personality factors may have in important everyday decisions. Different ways to show numerical information could influence the perception about it. This is mainly true in presence of certain personality traits and ability to deal with numbers. The same aspects could also influence the importance people give to other's behavior and the regret for a profitless one. In two experiments we presented a scale of personality (HEXACO-PI-R 100 self report scale), an experimental scenario and, in the first study, a numeracy assessment scale. Factor analysis of the 100 items HEXACO-PI-R confirmed the 6 factors structure. In the first experiment people with highest scores for the "emotivity" and "openness to experience" factors are more influenced by intuitive formats and enhanced numerical differences. These effects are stronger when people compare their behavior to the more advantageous behavior of other people. Hypothesis are partially confirmed and the data could provide the opportunity to present specific incentive to different profiles.

Graininess, similarity and decision making

Zur Shapira, Christina Fang & Amitav Chakravarti

New York University

An important organizing principle of individuals, faced with the perpetual novelty of the world, is similarity-based judgment (Tversky, 1977). A distinguished tradition of psychology has studied various representations of similarity relations (Sattath and Tversky, 1977; Gati and Tversky, 1984; Tversky and Gati, 1978), yet there is relatively less research on the kind of mechanisms that lead individuals to judge objects to be more or less similar to each other. In particular we study the graininess of mental representations. The graininess of one's mental model refers to the number of categories that one uses in judgment and decision making (Pettigrew, 1958). A coarse-grained model or category structure tends to have fewer categories while a fine-grained model has more. In this paper, we explore the link between the graininess of one's mental model, judgments of similarity, as well as the performance implications of different similarity-based judgments (e.g., change-detection judgments). Preliminary results show that those situationally primed with a narrow category structure reacted more than those with a broad category structure.

When and for whom more information is harmful?

Adi Amit & Lilach Sagiv

The Hebrew University of Jerusalem

People experience unpleasant feelings of overload in choosing from many (rather than few) alternatives (Iyengar & Lepper, 2000; Schwartz, 2004). We suggest that the amount of information provided on each alternative – that is, the number of attributes – has similar detrimental overload effects (Study 1). We further suggest that the susceptibility to the attributes overload effect is moderated by epistemic motivations: Manipulating the epistemic motivation of Conservation (vs. Openness to change) enhances feelings of overload (Study 2) and influences the tendency to buy a digital camera in a purchasing simulation (Study 3).

Fast & frugal vs. logistic regression competition redux

Neda Kerimi, Henry Montgomery

Department of psychology, Stockholm University

Lars Backlund & Ylva Skåner

Center for Family and Community Medicine, Karolinska Institute

In this study we compared and cross validated, logistic regression (LR) and two Fast & Frugal models (Take The Best and an extended version of Take The Best) in terms of fit, prediction, and number of cues searched. In contrast to previous cross validation studies, we modeled behavioral decision making data (rather than ecological relations) and we also used different significance levels for cue inclusion in LR (rather than just using all cues). Two data sets, one on Heart failure diagnosis (27 medical doctors), and one on Hyperlipidemia treatment (38 medical doctors decided) were used. In both data sets, the LR models had better fit than the F&F models. When the models were cross validated, the predictive ability of all models decreased significantly. However, the LR models still tended to have better predictive ability, especially when only significant cues were used. On the other hand, F&F models searched fewer cues in order to reach decision. As a whole, the present data cast doubt on the validity of previous results purporting to show that Fast and Frugal heuristics outperform regression models in accuracy.

Pitfall or scaffold? Anchoring effect in planning decisions

Eliran Halali, Yoella Bereby-Meyer & David Leiser

Ben-Gurion University

This study examines anchoring effects in planning decisions. In two experiments participants were asked to build lesson schedules. We designed the constraints so that the use of an anchoring strategy was either helpful or harmful. In experiment 1 the expected anchor was generated from the task constraints (mandatory courses). In experiment 2 with a less restricting task (elective courses only), the expected anchor was generated from a saliently desirable component. A significant difference was found in the proportion of participants that reached the optimal solution in both cases. Further, participants in the Anchoring as an Asset (AA) condition reached solutions on average significantly closer to the optimum than those in the Anchoring as an Obstacle (AO) condition, both in terms of points of interest gathered, and in terms of the number of solutions better than the one reached. No difference was found in the time required to complete the two schedules. This pattern of results suggests such configuration problems are solved heuristically rather than analytically.

Unpacking can reduce task completion time estimates

Constantinos Hadjichristidis, Nicola Fenner

Department of Cognitive Sciences and Education, University of Trento

Barbara Summers

Leeds University Business School, University of Leeds

Kevin Thomas

School of Psychology, Trinity College Dublin

Aim. Kruger & Evans (KE; 2004) hold that unpacking a task (listing some of its subtasks) should increase task completion time estimates. Based on Sloman et al. (2004), we predict the opposite if the unpacked subtasks are easy to complete. Methods. Ss (N=152) were presented with a formatted and an unformatted text (dictionary definition). They had to estimate the time (in min) it would take them to change the unformatted text on a PC using MS Word so that it looks identical to the formatted text. -Packed group: were asked this question. -Unpacked Easy: the question listed easy changes (italics, boldface). -Unpacked Hard: the question listed hard changes (ə, ő, and ĩ). At the end, Ss had to rate their PC knowledge on a 1-10 scale. Predictions: KE: packed \leq unpacked(easy/hard); we: unpacked easy \leq packed \leq unpacked hard. Results & Conclusion. Our prediction was supported. The means (SD) for unpacked easy, packed, unpacked hard were: 6.23 (4.57), 8.48 (6.26), 12.73 (8.65). An ANCOVA on time judgments using stated PC knowledge as a

covariate showed a main effect of group: $F(2, 151) = 9.35, p < .001$. Planned contrasts showed Easy < Packed and Easy < Hard (for both $p < .01$).

Role taking: Idealistic advice and pragmatic choice

Ronit Montal, Rachel Barkan & Shai Danziger

Ben Gurion University

In this research we offer that advisors weigh idealistic considerations more and pragmatic considerations less than choosers. Accordingly, we demonstrate that, in both scenarios and in recall of real decisions involving a tradeoff between idealistic and pragmatic options, advice is more idealistic and is more consistent with central values, than choice. Building on construal level theory, we argue that the different emphasis on idealistic and pragmatic considerations in choice and advice result from the greater psychological distance from which advice is given. Consistent with this view we find that advisors represent decisions at a higher construal level than choosers, and that this difference partly underlies the observed effects. Additionally we reveal that advisors do not appear to contemplate what they would do if they were choosers, and that following idealistic advice increases chooser satisfaction.

Problems of policy capturing: A dim light in a big black box

Jan K. Woike, Ulrich Hoffrage

Faculty of Business and Economics (HEC), Université de Lausanne

Ralph Hertwig

Faculty of Psychology - University of Basle

In an extensive simulation study, the outcome-based methodology of policy capturing was put to a critical test. We first created a population of agents, each defined by using a different inferential strategy. Then, the predicted inferences were modeled by a set of policy capturing models to determine whether the strategies that initially generated the inferences could be identified accurately. The simulation was conducted in two phases, inference generation and modeling. In the first phase, four factors were manipulated: Size of learning set, completeness of information, information accuracy, and reliability of strategy execution. All decisions generated by each strategy were reconstructed by each model, so that it was possible to analyze strategy accuracies and model validities for each model-strategy pair. One of the key results of this extensive analysis is that the outcome-based reconstruction approach is ill-suited for identifying the strategy employed by decision makers, especially in conditions with uncertain information and high percentages of application errors.

Cognitive behavioral valuation

David Comerford

UCD School of Economics and UCD Geary Institute

Cognitive Behavioural Therapy prompts a questioning of assumptions and associations that lead to self-destructive behaviours. Cognitive behavioural valuation prompts respondents to consult their own knowledge of utility-relevant considerations to overcome judgment biases. This paper presents findings from contexts in which the affect heuristic is expected to cause distortion in judgment. The first study elicits judgments of how enjoyable it is to commute using a given mode of transport. Respondents who were prompted to revivify the affective details of their most recent commuting experience prior to making this judgment evaluated driving as less enjoyable and travelling by bus as more enjoyable than did a control group. These results are shown to be consistent with correction for focalism and representativeness. The second study, conducted five months after a nationwide pork contamination, measures the premium consumers are willing to pay for contaminant-free pork. It tests whether valuations are sensitive to priming with affect-inducing or risk-calculation questions. Valuations did not differ across the conditions, suggesting that respondents in the control condition spontaneously attended to utility relevant considerations.

SYMPOSIA

Tuesday August 25

10:30-12:30

Palazzo Istruzione

<p>PROCESS TRACING METHODS: COMPARISONS AND EMPIRICAL RESULTS</p> <p><i>Aula Magna</i> Convenors: Ola Svenson & Rob Ranyard Discussant: Ola Svenson</p>	<p>PSYCHOLOGICAL RESPONSE TO TERRORISM THREAT</p> <p><i>Room 4</i> Convenor: David J. Weiss Discussant: Detlof von Winterfeldt</p>	<p>CHOICE MODELING RECONSIDERED - COMPARATIVE HEURISTICS</p> <p><i>Room 6</i> Convenor: Jonathan Leland Discussant: Valerie Reyna</p>	<p>FORESTS, HOSPITALS & NEEDY GROUPS: PROCESSES OF EVALUATION</p> <p><i>Room 7</i> Convenor: Ilana Ritov Discussant: D. Schkade</p>
<p>1) Advantages First Principle: An application of the AIS method Oswald Huber Odilo Huber Arlette Bär</p>	<p>1) Unintended fear-evoking consequences of risk communications Wändi Bruine de Bruin Baruch Fischhoff Julie Downs Keith Florig Eric Stone David Mandel Jennifer Lerner</p>	<p>1) The hunt for a descriptive theory of choice under risk Jonathan Leland</p>	<p>1) Bringing meaning to numbers in decisions Ellen Peters Nathan Dieckmann Daniel Västfjäll C. K. Mertz Paul Slovic Judith H. Hibbard</p>
<p>2) Accessing doctors' knowledge states by stimulated recall Olga Kostopoulou</p>	<p>2) Choice of transportation after a terrorist attack in London Barbara Fasolo Zhifang Ni Lawrence Phillips</p>	<p>2) Process tests of the priority heuristic Ralph Hertwig</p>	<p>2) Blaming the victim: When identifiability decreases helping Tehila Kogut</p>
<p>3) Skin conductance as a tool for insight into decision making Bernd Figner Ryan Murphy</p>	<p>3) Fear and loathing in Hollywood Richard John Heather Rosoff</p>		<p>3) The role of ambient scent on the evaluation of public goods Nicolao Bonini Michele Graffeo C. Hadjichristidis Ketti Mazzocco</p>
<p>4) Intertemporal choice: Behavioral and neuroscience data Elke Weber</p>	<p>4) Terrorists scare us, but will they interfere with our plans? Thomas Baumert David J. Weiss Mikel Buesa Aurelia Valino Richard John Heather Rosoff Marcel Hovsepian</p>		<p>4) Category-constrained emotional enhancement of public goods Ilana Ritov Nicolao Bonini, Michele Graffeo C. Hadjichristidis</p>

Process tracing methods: Comparisons and empirical results

Convenors:

Ola Svenson, Stockholm University - Rob Ranyard, University of Bolton

Discussant:

Ola Svenson, Stockholm University

In addition to structural analyses of human decision making, process tracing methods increase our understanding of psychological processes in human judgment and decision making. This symposium will have a focus on methods for tracing decision processes and explaining decisions. We will present some recent contributions that develop, discuss and use process tracing techniques. Parts of the symposium will be related to a forthcoming handbook of process tracing methods. A first contribution will describe how free information search is applied to describe decision processes and test a decision rule. The second contribution uses stimulated recall for understanding decision processes and the method discussed and applied in health care context. A third contribution uses skin conductance as a measure of decision processes with particular emphasis on emotional components. The last contribution will present complementary contributions made by behavioral and fMRI methods in analyses of decision processes.

Advantages First Principle: An application of the AIS method

Oswald Huber, Odilo Huber & Arlette Bär

University of Fribourg

The experiment investigates the question of how people identify, early in the decision process, those alternatives that are worthwhile to be examined in more detail. We assume that decision makers employ the Advantages First Principle: They first search for information about positive outcomes and then focus their information search (e.g. for negative consequences or for risk defusing operators) on those alternatives that appear attractive after this initial evaluation. The Advantages first Principle has already been confirmed in two experiments. Therefore, the main research question in the present experiment is whether it can be generalized also to traditional gambling tasks. 20 subjects had to choose in a scenario task and four gambling tasks with real monetary wins and losses. The Principle was confirmed also in the gambles. A combination of the basic and the list versions of the method of Active Information Search was used in order to operationalize information search.

Accessing doctors' knowledge states by stimulated recall

Olga Kostopoulou

University of Birmingham

Stimulated recall involves participants recalling their thoughts during earlier task performance, aided by a record of that performance. The methodology has been used to study clinical reasoning and is an alternative to think aloud, which may not be suitable in interactive decision situations. Being retrospective, the data may suffer from bias and not reflect accurately the earlier thinking processes. Participants may not always recall but sometimes re-solve a problem. Resolving a problem can still provide valid verbalizations that help to answer specific research questions, as long as no feedback or other information are provided that may induce novel insights and additional analyses. This contribution will present how stimulated recall was employed in a study that traced General Practitioners' information search during the diagnosis of difficult computerised cases. Stimulated recall helped to understand why information had been elicited, how it had been interpreted and why diagnoses had been missed. Participants did not change their diagnoses, suggesting that retrospective verbalisations accurately reflected their knowledge states during the earlier diagnostic process.

Skin conductance as a tool for insight into decision making

Bernd Figner

Columbia University

Ryan Murphy

University of Columbia and ETH Zurich

The physiological measure of skin conductance is related to activity of the sympathetic branch of the autonomous nervous system and has been used as indicator for various psychological processes, such as attention, habituation, and cognitive effort. In JDM, it has often been used as an indicator for emotional arousal. Most recently, skin conductance measurement has found renewed interest in JDM research as part of the recent "emotions revolution" (Weber & Johnson, 2009). Exemplified with the Columbia Card Task (CCT, Figner et al., in press) and other applications, we show how measures of skin conductance can be used to gain a better understanding of psychological processes in judgment and decision making. We will present both more traditional and rather novel data analysis approaches, suited for various research questions. We will also discuss considerations important when planning and doing research with skin conductance measures, including advantages and disadvantages of skin conductance compared to other physiological measures.

Intertemporal choice: Behavioral and neuroscience data

Elke Weber

Center for the Decision Sciences - Columbia University

Using the example of choices between choice options where different amounts of rewards are available at different points in time (typically sooner smaller vs. later larger rewards), I illustrate the complementary contributions made by behavioral and neuroscience (fMRI) methods to understand the psychological processes that underlie such decisions.

Psychological response to terrorism threat

Convenor:

David J. Weiss - California State University

Discussant:

Detlof von Winterfeldt - International Institute for Applied Systems Analysis

The avowed purpose of terrorism is to create fear and disrupt the lives of civilians, thereby leading the population to pressure their government for change. The government tries to assure its citizens that it is taking steps to protect them. Bruine de Bruin reports bi-national work showing that even accurate information can counter-productively intensify fear. With travel systems a frequent target, whether people pursue previously attacked modes is important economically and from a safety perspective. Fasolo reports how London commuters reacted after the subway was bombed. John reports that California university students express worry in response to scenario incidents in proportion to proximity, number of attacks, and number of victims. Baumert and Weiss asked about fear and future flights, presenting airport bombing scenarios to Spanish and California respondents. A key difference between the samples is that the American subjects had no personal exposure to terrorism in their histories, while many of the Spanish respondents had personal or familial experience with terrorism. A feature of this work is a new analytic procedure for nominal (behavioral) responses such as actions.

Unintended fear-evoking consequences of risk communications

Wändi Bruine de Bruin, Baruch Fischhoff, Julie Downs, Keith Florig

Carnegie Mellon University

Eric Stone

Wake Forest University

David Mandel

DRDC Toronto

Jennifer Lerner

Harvard University

Effective risk communications are crucial to disaster preparedness. We hypothesized that scientifically sound risk communications (about avian flu and dirty bombs) may unintentionally evoke fear, potentially limiting their effectiveness. Drawing on appraisal-tendency theory (Lerner & Keltner, 2000), we predicted that trait fear and communication-induced state fear would undermine cognitive responses to risk communications (Fischhoff et al., 2006), including judgments of risk, resilience, comprehension, self-efficacy, trust, sufficiency of supplies, and compliance intentions. Because disasters cross national boundaries, we report results for American and Canadian community samples. We discuss implications for developing effective risk communications.

Choice of transportation after a terrorist attack in London

Barbara Fasolo, Zhifang Ni & Lawrence Phillips

London School of Economics and Political Science

In the morning of July 7th 2005, three bombs exploded in short intervals on three London Underground trains. Nearly an hour later, a fourth bomb exploded on a double-deck bus. The bombings killed 52 commuters and the four suicide bombers, injuring over 700. This paper presents an analysis of the impact of these bombings (7/7) on Londoners' use of transportation in the aftermath of 7/7. Analysis of behavioural reactions to 9/11 suggests that terrorists "strike twice" first claiming lives and damaging infrastructure directly, and then indirectly, through people's heightened perception of the risk of a repeated attack on the mode directly attacked, causing a shift to a riskier transport mode. Transportation statistics revealed that Londoners' experience of 7/7 differed from US citizens' reactions. To explain, we conducted a pilot study to examine reasons for this disparity. Preliminary results point to the co-existence of two opposite beliefs concerning the chance of repeated terrorist attack and the safety of a transportation mode following its attack.

Fear and loathing in Hollywood

Richard John & Heather Rosoff

University of Southern California

300 students read vignettes describing four unrelated terrorist attacks in various US locations involving (1) conventional explosives in a public building, (2) a shoulder-fired missile (MANPAD) fired at a commercial airplane, (3) a dirty bomb exploded in a city, and (4) a smallpox virus released in a city. A fifth (comparison) vignette described a large (7.6 magnitude) earthquake centered in Los Angeles. Attack descriptions were systematically varied on three dichotomous factors using a 2 (target proximity) X 2 (number of different target locations) X 2 (casualties) design. They were asked about beliefs and emotions related to the attack, as well as various intentions for future behavior and willingness to pay for increased security. Perceived risk and worry were related to target proximity for both smallpox and dirty bomb attacks. Perceived risk and intention to avoid particular situations were related to attack coordination (number of targets) for conventional bomb attacks. The number of casualties described in the vignette affected perceived risk of a smallpox attack, worry about a conventional bomb attack, and intention to avoid situations vulnerable to a dirty bomb attack.

Terrorists scare us, but will they interfere with our plans?

Thomas Baumert

Universidad Complutense de Madrid

David J. Weiss

California State University

Mikel Buesa, Aurelia Valino

Universidad Complutense de Madrid

Richard John, Heather Rosoff & Marcel Hovsepien

University of Southern California

In a bi-national study, respondents (N = 216 in Spain; N = 216 in U. S.) read a single scenario describing a terrorist attack and then answered questions about emotional responses and future plans. A plot to destroy airplanes at the airport in Madrid (Los Angeles) was described. Between-subjects factors embedded in the scenarios were (1) a government announcement suggesting either great concern or that the situation was under control (2) a report that other people were either highly disrupted or going about business as usual. Spanish results have not yet been analyzed; U. S. results were that the government announcement had no effect on emotion or projected action. However, the social information cued emotional responses. Neither factor affected whether people said they

would alter their future behavior. There was also a within-subject manipulation of the exigency of flying. Almost all respondents said they would not change a planned flight to attend a close friend's wedding or important job interview, but some said they would postpone a vacation or drive to a different location. Projected behaviors were tied to the factors using a new statistical procedure for nominal data.

Choice modeling reconsidered - Comparative Heuristics

Convenor:

Jonathan Leland - National Science Foundation

Discussant:

Valerie Reyna - Cornell University

Most models of risky and intertemporal choice, be they normative models like expected utility or descriptive ones like Prospect theory, posit an absolute evaluation process in which an alternative's outcomes are assigned precise values reflecting their desirability, the values are adjusted for risk or timing, the resulting products are aggregated to produce an index value, and the alternative with the greatest index value is selected. The first talk in this session suggests that, at least in part, the predominance of such models is a consequence of an arbitrary decision regarding how to present lotteries to experimental subjects. The other two talks explore the consequences of modeling choice as a comparative process -consequences that are, in many cases, inconsistent with models that posit absolute evaluations. In addition, they raise provocative questions regarding the extent to which choices are preference revealing, the influence of numeracy on decision performance, and the nature of appropriate criteria for judging whether policies are welfare improving.

The hunt for a descriptive theory of choice under risk

Jonathan Leland

National Science Foundation

In this paper I propose that the development of descriptive theories of choice in economics has been profoundly influenced by an arbitrary and seemingly innocuous decision as to how to present risky choices to experimental subjects. This decision to represent lotteries as prospects has led to a preoccupation with the question of whether preferences conform to what is known as the independence axiom. Had the profession chosen to represent lotteries in the action-by-state matrices favored by Savage, the independence axiom would have appeared uncontroversial but we would have questioned whether preferences obeyed arguably more fundamental tenets of rationality like

transitivity. That different ways of representing lotteries lead to different conclusions regarding which axioms preferences do and do not obey suggests that the choices people make are not necessarily reflecting properties of their preferences at all. Instead the choices reveal properties of the decision rule individuals use to try to satisfy their preferences.

Process tests of the priority heuristic

Ralph Hertwig

University of Basle

Conflict resolution in risky choice has been modeled by assuming a trade-off between probabilities and values (or non-linear functions thereof)—such as in expected utility theory and its modifications (EU models). The major alternative is heuristics that rely on limited search and aspiration levels. A recently proposed model is the priority heuristic. Heuristics are meant to be both process and outcome models and thus can be tested on both levels. We report two outcome and process tests, respectively. In Studies 1-2, we find that none of 13 EU models and heuristics can predict individual choice better than the priority heuristic. Based on quantitative process predictions for both the priority heuristic and EU models, in Studies 3-4 we find that the priority heuristic predicts direction of search better than EU models and that trade-offs are avoided more in difficult than in easy problems. Acquisition frequencies, in contrast, are inconsistent with both models. We provide evidence that acquisition frequencies, when decoupled from choice, are systematically driven by “similarity”.

Forests, hospitals & needy groups: processes of evaluation

Convenor:

Ilana Ritov - Hebrew University

Discussant:

David Schkade - University of California, San Diego

The past decade brought a flourish of research concerning the role of emotions in decision making. This research yielded seminal findings showing the effects of affect on preferences. However, only recently it is becoming increasingly clear that the two systems, the emotional and the analytical, cannot be regarded as separate and independent. Emotions may be involved at different levels of processing. At a general level, evaluations and behavioral tendencies are affected by general, sometimes non-conscious, moods. At another level, evaluations may be influenced by emotions aroused in reaction to particular issues. The effects of both the indirectly induced feelings and the specific emotional reactions depend on cognitive factors, such as the compatibility of the aroused emotions with numerical processing, explicitly held attitudes, and subjective categorization. In this symposium we shall discuss several research projects that investigate the intricate interplay of affect and cognition, particularly in the context of public goods and health related issues.

Bringing meaning to numbers in decisions

Ellen Peters, Nathan Dieckmann

Decision Research Eugene (OR) and University of Oregon

Daniel Västfjäll

Decision Research, Eugene and Goteborg University

C. K. Mertz

Decision Research, Eugene

Paul Slovic

Decision Research, Eugene, and University of Oregon

Judith H. Hibbard

University of Oregon

Decision makers are often quite poor at using numeric information in decisions. The results of four experiments demonstrate that a manipulation of evaluative meaning (i.e., the extent to which an attribute can be mapped on to a good/bad scale) has a robust influence in judgments and choices about health insurance and hospitals across diverse adult populations. The manipulation resulted in greater use of numeric quality-of-care information in judgments and less reliance on an irrelevant affective state among the less numerate. Recall results for provided quality-of-care numbers

suggested that the manipulation did not influence the depth with which numeric quality-of-care indicators were processed. Results of a reaction-time paradigm revealed that feelings were more accessible than thoughts in the presence of the manipulation, suggesting that the effect may be due, at least in part, to an affective mechanism. Numeric information is often provided in health and other decisions, but may not be useable by consumers without assistance from information providers. Implications for the functions of affect and consumer decision making are discussed.

Blaming the victim: When identifiability decreases helping

Tehila Kogut

Ben-Gurion University

People's willingness to contribute more resources to save the lives of identified victims (about whom they have some information) than to save anonymous or statistical victims is known as The Identifiable Victim Effect. In previous research we suggested that the emotional arousal (empathy and distress) toward a single identified victim is a major source of the effect. However, the spontaneous emotional response to a single identified target may also strengthen negative emotions (anger and blame) in situations where the target is perceived responsible for his/her plight. In the current research we show in three different studies that identification of a single target may decrease helping in such cases, especially when the perceiver holds strong beliefs in a just world (in which people get what they deserve). Such beliefs have a weaker influence on willingness to help associations or groups in the society.

The role of ambient scent on the evaluation of public goods

Nicolao Bonini, Michele Graffeo, Constantinos Hadjichristidis & Ketti Mazzocco

University of Trento

Standard economic theory assumes that the evaluation of a public good is a function of the evaluation of expected cost/benefit trade-off. Following the constructed preference framework, we study whether the context where the public good is evaluated affects its evaluation. Specifically, we investigate whether the presence/type of a peripheral cue such as ambient odor affects preferences. The peripheral information is normatively irrelevant. The presence of the ambient odor does not give different information on the features of the public intervention and requested contribution compared to a control condition (e.g., costs, magnitude/type of intervention, modality of personal contribution, etc.). Findings show that the presence and type of olfactory cue affects the evaluation of a public good. Findings are discussed in terms of the interplay between cognitive and emotional aspects.

Category-constrained emotional enhancement of public goods

Ilana Ritov

Hebrew University

Nicolao Bonini, Michele Graffeo & Constantinos Hadjichristidis

University of Trento

The present research investigated the role of emotion in evaluation of public actions, and the possible interaction of emotion with cognitive processes. Emotions may be involved at two levels. At a general level, it has been repeatedly shown that evaluations and behavioral tendencies are affected by non-specific, sometimes non-conscious, moods. At a different level, evaluations may be influenced by emotions aroused in reaction to particular issues. In the latter case, categorization may play an important role. In a series of studies we show that the effect of emotionally priming a referent problem on the evaluation of a target problem depends on the relative categorization of the two problems. More specifically, a spill-over effect was observed, whereby the emotional enhancement of the referent increased contributions to the target, only when the referent and target belong to the same category. We discuss the implications of the category constrained nature of the emotional effect for the mutual influence of affect and cognition.

SYMPOSIA

Thursday August 27

11:00-13:00

Palazzo Istruzione

<p>INDIVIDUAL DIFFERENCES IN DECISION MAKING COMPETENCE</p> <p><i>Aula Magna</i> Convenors: F. Del Missier, W. Bruine de Bruin Discussant: Irwin Levin</p>	<p>OTHER PEOPLE'S DECISIONS: UNDERSTANDING AND IMPROVING THEM</p> <p><i>Room 4</i> Convenors: Tim Rakow, Nigel Harvey Discussant: Elke Weber</p>	<p>IMPRECISE PERCEPTIONS AND SIMILARITY JUDGMENTS IN DECISIONS</p> <p><i>Room 6</i> Convenor: J. Leland Discussant: Ellen Peters</p>	<p>UNDERSTANDING PROCESS FAIRNESS FROM DIFFERENT ANGLES</p> <p><i>Room 7</i> Convenor: S. Tontrup Discussant: Gary Bolton</p>
<p>1) Development of decision-making competence in children Irwin Levin Joshua Weller Elaine Bossard</p>	<p>1) Opposing errors in predictions of others' preferences Katherine Burson David Faro Yuval Rottenstreich</p>	<p>1) Gist of risk: A fuzzy-trace theory approach Valerie Reyna</p>	<p>1) Pricing procedural fairness Stephan Tontrup Dennis Dittrich</p>
<p>2) Executive control and decision competence in young adults Fabio Del Missier Timo Mäntylä Wändi Bruine de Bruin</p>	<p>2) Judging how much help people will give Nigel Harvey Federica Franceschi</p>	<p>2) Subadditivity, similarity and intertemporal choice Daniel Read</p>	<p>2) Biases in justice perceptions over time Irina Cojuharencu Michael Bashshur</p>
<p>3) Explaining adult age differences in decision competence Wändi Bruine de Bruin Andrew Parker Baruch Fischhoff</p>	<p>3) Informing parents of the risks of pediatric surgery Tim Rakow Rebecca Wright Kate Bull David Spiegelhalter</p>	<p>3) Similarity Judgments and Strategy Selection in 2x2 Games Jonathan Leland</p>	<p>3) Mandated justice Yuval Feldman Tom Tyler</p>
<p>4) Confidence in knowledge: metacognitive competence and age Andrew Parker Joanne Yoong Wändi Bruine de Bruin Robert Willis</p>	<p>4) Receiving advice on matters of taste Ilan Yaniv Shoham Choshen-Hillel Maxim Milyavsky</p>	<p>4) Imprecise Preferences and the Stochastic Component in Choice Robin Cubitt D. Navarro-Martinez Chris Starmer</p>	<p>4) Process fairness and dynamic consistency Stefan Trautmann</p>

Individual differences in decision making competence

Convenors:

Fabio Del Missier, University of Trieste - Wändi Bruine de Bruin, Carnegie Mellon University

Discussant:

Irwin Levin, University of Iowa

Individual differences have traditionally received scarce attention from researchers in the JDM field. However, recent research has promoted significant advances and provided insights into how individual decision-making skills relate to each other, to cognitive abilities and to real-world outcomes. Reliable and valid instruments for the measurement of decision-making competence have been recently developed and made available (e.g., Y-DMC –Parker & Fischhoff, 2005; and ADMC –Bruine de Bruin, Parker & Fischhoff, 2007), inspiring new lines of research. The symposium will present a representative collection of recent research on individual differences in decision competence, exploring its cognitive and affective underpinnings in different age groups. The main goal of the initiative is to promote an open discussion aimed at identifying the most promising lines for future research.

Development of decision-making competence in children

Irwin Levin, Joshua Weller & Elaine Bossard

University of Iowa

Recent work in our laboratory has concentrated on developing "child-friendly" versions of classic decision making tasks. As part of a longitudinal study of the development of decision-making competence (DMC) in pre-adolescents, we have added new versions of the DMC measures provided by Parker, De Bruin and Fischhoff as well as age-appropriate measures of real-world decision making. In particular, we include our recently developed "Cups" task as a way of comparing individuals within and between different age groups in terms of sensitivity to contingencies that make a risky choice advantageous in some cases but disadvantageous in other cases. We also include our recently constructed child's version of the numeracy scale which we and others have shown to be a potent individual differences measure that discriminates between good and poor decision makers. We will present data from Year 1 of our study which show how DMC as measured in controlled tasks and newly developed scales predict both positive behaviors such as examples of helping others and negative behaviors such as getting into trouble in school for children as young as age 10.

Executive control and decision competence in young adults

Fabio Del Missier

University of Trieste

Timo Mäntylä

University of Umeå

Wändi Bruine de Bruin

Carnegie Mellon University

In spite of the growing interest in cognitive control in decision making, empirical evidence on specific executive processes involved in decision-making tasks is surprisingly poor. We report the results of an individual-differences study that investigated the involvement of specific control functions (shifting, updating, and inhibition) in a set of decision making tasks aiming to measure normative aspects of decision competence (A-DMC) and in the IGT. This study, carried out on a sample of undergraduates, showed that (a) some, but not all, decision tasks pose significant control demands and (b) there is specificity in the control processes required by different decision tasks. In particular, inhibition is related to the capacity to resist attribute framing and to apply decision rules, shifting is strongly linked to the ability to provide consistent judgments of uncertain events, and updating is positively related with IGT performance. These results provide insight on executive processes that support performance in tasks measuring decision competence and allow identifying decision tasks that could be sensitive to developmental and pathological differences in cognitive control.

Explaining adult age differences in decision competence

Wändi Bruine de Bruin

Carnegie Mellon University

Andrew Parker

RAND Corporation, Pittsburgh, PA

Baruch Fischhoff

Carnegie Mellon University

We use a dual-process approach to explain age-related changes in decision-making skills. Older age has been associated with declining cognitive abilities, and increased reliance on experiential processes. We suggest that this finding can explain why some decision-making skills decrease with age, while others remain unchanged or even improve. We find that decision-making skills that decrease with age are cognitive in nature, showing a positive correlation with cognitive ability (when controlling for experiential style), but not with experiential style (when controlling for

cognitive ability). The negative correlations with age can be explained by age-related declines in cognitive ability. In contrast, decision-making skills that do not decrease with age independently rely on cognitive ability, which decline with age and on experiential processes, which improve with age. Nevertheless, people do not appear to recognize this distinction. Older adults perceived themselves as worse decision makers; their self-ratings are correlated with the (cognitive) decision-making skills that decrease with age but not with the (experiential) decision-making skills that do not.

Confidence in knowledge: metacognitive competence and age

Andrew Parker

RAND Corporation, Pittsburgh, PA

Joanne Yoong, Wändi Bruine de Bruin

Carnegie Mellon University

Robert Willis

University of Michigan, Ann Arbor

Our willingness to take risks, seek out additional information, and other decision-relevant behaviors often depends on how much we know. However, we rarely have access to the true extent of our knowledge and instead must rely on perceived knowledge (or confidence). Hence, accurate confidence in knowledge may represent a critical metacognitive competency. This paper uses data from the American Life Panel, an internet panel study of approximately 1200 adults age 40+. We examine four tasks designed by different researchers using different methods to assess knowledge/performance and confidence. These tasks were conducted on overlapping sets of respondents ($n = 584 - 1086$), allowing for comparative and parallel analyses. We find that as age increases, confidence increases, even after controlling for assessed knowledge. Furthermore, controlling for assessed knowledge, confidence predicts a variety of financial behaviors - and often in unexpected ways. Those with greater unjustified confidence (i.e., controlling for knowledge) are more likely to report plan for retirement, to report saving for retirement, and to successfully minimize fees on a hypothetical investment task.

Other people's decisions: Understanding and improving them

Convenors:

Tim Rakow, University of Essex - Nigel Harvey, University College London

Discussant:

Elke Weber - Center for the Decision Sciences - Columbia University

People often need help when making decisions. They may require information or advice about risk levels or other inputs into their decision making process; they may need another individual to share that process with them; or may need someone else to act as a proxy to make the decision for them. In this last case, the decision maker may need to be able to make judgments about the other person's beliefs and desires and be capable of appreciating the factors that influence them. The four talks in our symposium cover different types of help (advice, communication of risk to proxy decision makers), include work in applied domains (e.g., medicine), and report investigations into how well people can assess other people's preferences and beliefs, predict their decisions, and take into account the emotional and cognitive factors that underlie them.

Opposing errors in predictions of others' preferences

Katherine Burson

University of Michigan

David Faro

London Business School

Yuval Rottenstreich

New York University

We investigate the accuracy and process of people's predictions of others' preferences under uncertainty, by examining performance dependent monetary decisions. We focus on two key prediction steps. First, people must anticipate others' beliefs about the likelihood of uncertain events. Second, they must anticipate the impact those beliefs will have on others' choices. People appear to err at both steps, but, intriguingly, in opposing directions. Where people think others are more optimistic about likelihood than they actually are, they also think beliefs will have less impact than they actually do. Likewise, where people think others are more pessimistic about likelihood than they actually are, they think beliefs will have more impact than they actually do. Accurate predictions, when they arise, can thus be an "accident" of two offsetting errors. Moreover, predictions can, ironically, become more inaccurate if one step is debiased but the other is left untouched. Finally, our analysis shows that because of these opposing prediction errors, principals will tend to follow biased strategies for hiring agents.

Judging how much help people will give

Nigel Harvey & Federica Franceschi

University College London

According to dual route models of altruistic behaviour, people's provision and appraisal of help can depend on both emotional and cognitive factors (Ames, Flynn and Weber, 2004; Loewenstein and Small, 2007). Here we ask how people assess the amount of help that they and other people would give in situations in which there is a commitment to give some help. Participants were told either a) they have agreed to check that a neighbour's house, mother, parents or cat are OK while she is away or b) their neighbour has agreed to do the same for them. In both cases, they judged a) how many visits the helper would make per week and how long each one would be, b) the likelihood of a problem arising and the severity of any such problem and c) the strength the helper's emotions before, during and after the absence of the person needing help. When the participants were helping, estimated amount of help depended both on their estimates of the risk associated with the situation and of the strength of the emotions it evoked. However, when other people were helping the participants, estimated amount of help depended only on their estimates of the risk associated with the situation.

Informing parents of the risks of pediatric surgery

Tim Rakow, Rebecca Wright

University of Essex

Kate Bull

Great Ormond Street Hospital for Sick Children, London

David Spiegelhalter

University of Cambridge

Decisions about surgery in children always involve others. Doctors recommend treatment options, and parents consent to surgery and can sometimes choose where it occurs. Three studies with a broad community sample (all $N \approx 100$) examined the presentation of risk information for such decisions, and parents' preferences among alternative treatments or hospitals. Participants saw survival curves (Study 1) and multi-state survival curves (Study 2) differing in the number of treatment options shown per graph. Study 3 presented funnel plots – a quality control tool – that plot the number of procedures against success/failure rates for multiple hospitals and show control limits to signal poor performance. Interpretation of the graphs was very accurate, but less so when question wording was incongruent with the frame (mortality/survival) of the graph. Objectively

assessed and self-reported numeracy predicted accuracy in all studies ($r=.4$). Preference among alternatives was appropriately sensitive to the data, but sometimes influenced by arbitrary display features. These tools have merit for communicating risk, but advisors working with parents should be aware of how best to use them.

Receiving advice on matters of taste

Ilan Yaniv, Shoham Choshen-Hillel & Maxim Milyavsky

The Hebrew University of Jerusalem

Previous research has documented the benefits of factual advice on decision quality. But how relevant is advice on matters of taste to one's choices? We introduce two sources of advice – a similar advisor and an average advisor – and a theoretical framework in which a central concept is discrimination of taste (or preferences) within a specific choice domain (e.g., jazz music, action films). Decision makers' discrimination of taste affects their strategies in seeking others' opinions and their tendency to rely on one type of advisor over the other. Specifically, the higher one's discrimination, the more likely one is to seek the opinion of a similar advisor rather than the average advisor. I will report experiments testing these hypotheses and a theoretical simulation designed to investigate the relative gains from relying on these sorts of advisors. The results shed light on assisted decision making and personalized recommendation systems.

Imprecise perceptions and similarity judgments in decisions

Convenor:

Jonathan Leland, National Science Foundation

Discussant:

Ellen Peters, Decision Research Eugene and the University of Oregon

Most models of risky and intertemporal choice, be they normative models like expected utility or descriptive ones like Prospect theory, posit an absolute evaluation process in which an alternative's outcomes are assigned precise values reflecting their desirability, the values are adjusted for risk or timing, the resulting products are aggregated to produce an index value, and the alternative with the greatest index value is selected. The talks in this session demonstrate that a great deal of observed choice behavior – differences in attitudes toward risk, anomalies under uncertainty, apparently hyperbolic discounting and the occurrence of systematic behavior in strategic setting where theory predicts none all follow if we assume the values agents assign to attributes are imprecise or that they judge certain distinct values as “similar” or “inconsequentially different.” The papers raise provocative questions regarding the influence of numeracy on decision performance and have novel implications for research on the neural foundations of decision making.

Gist of risk: A fuzzy-trace theory approach

Valerie Reyna

Cornell University

A Fuzzy-trace theory model of decision making is presented in which choices are based on simplified mental representations of alternatives (distillations capturing the essence of the options in terms of “fuzzy” memory traces) as opposed to more detailed, quantitative representations (verbatim memory traces). The consequences of variation in the precision of traces within individuals (e.g., preference reversals) and across individuals (e.g., variations in risk attitude with respect to characteristics like age) are discussed.

Subadditivity, similarity and intertemporal choice

Daniel Read

Yale University & Durham Business School

Judgments of similarity appear to influence choice in two distinct ways. One sense in which similarity and dissimilarity seem to matter concerns the notion of magnitudes being similar in value in the sense of being approximately equal. In the context of choosing between alternatives, similarity here applies within attributes and appears related to sub-additivity. The second notion of

similarity that appears to play a role in choice is more holistic, concerning the similarity of a specific case or instance or option to different classes of cases, instances or options. This talk discusses the role these concepts play in intertemporal decision making.

Similarity judgments and strategy selection in 2x2 games

Jonathan Leland

National Science Foundation

Behavioral economists cut their teeth trying to explain evidence demonstrating systematic violations of rationality in individual choice. They then moved on to try and explain failures of the rational model in the context of strategic interactions. Somewhat paradoxically, efforts in one domain are not related to those in the other. Choice anomalies have been accommodated by positing less restrictive preference structures. Anomalies in game theory are accounted for either by positing richer preferences structures (e.g., introducing other-regarding preferences) or by positing that agents suffer from limited strategic sophistication and foresight. While there may not be a single coherent explanation for misbehaviors reflected in choice and in games, it seems prudent to check. To this end I examine the implications of a model of decision making based on similarity judgments designed to explain choice anomalies for behavior in games. Implications of the model include sensitive to theoretically inconsequential manipulation of payoff values and sensitive to the way to decision problem is posed. Experimental evidence confirming these predictions is presented.

Imprecise preferences and the stochastic component in choice

Robin Cubitt, Daniel Navarro-Martinez & Chris Starmer

University of Nottingham

In this paper, we explore in a systematic way imprecision in individual preferences and its relationship to the stochastic component in choice behaviour. Specifically, we elicit certainty equivalents and imprecision intervals for a series of lotteries (twice for some of them) designed to study how some important aspects of the structure of decision problems affect imprecision and stochastic variability. We find that imprecision is a pervasive aspect of individual preferences that behaves with great internal coherence and responds very consistently to the structure of the lotteries. Namely, imprecision intervals become shorter when the distance between consequences in the lotteries is decreased and when the lotteries get closer to certainty. Closeness to certainty also increases asymmetry in the way certainty equivalents are selected within imprecision intervals. Most of these findings for imprecision are replicated by stochastic variability, showing that

imprecision and the stochastic component in choice are closely related. These findings have crucial implications for the specification of adequate stochastic choice models.

Understanding process fairness from different angles

Convenors:

Stephan Tontrup, Max Planck Institute of Economics

Discussant:

Gary Bolton, Smeal College of Business

Until recently process fairness did not attract the interest of Economic theory. However, while people should theoretically be indifferent between procedures not affecting their payoff, they exhibit preferences for institutions as such. For instance, people gain process utility they are willing to pay for from strengthening transparency in a governmental decision making process (Tontrup). Process and outcome concerns are even mingled. An unfair procedure may bias the perception of an outcome allocation. In memory based judgments these effects may get stronger over time (Cojuharenco). Also people switch from an ex ante focus on process fairness to a distribution based judgment ex post. Thus, a process they think is fair may lead to a payoff people perceive as unjust (Trautmann). So regulation is difficult: Mandating voice procedures in organizations by law may either crowd out positive reciprocal behavior or to the contrary the norm may strengthen workers beliefs that procedures are executed fairly (Feldman). The symposium strives to draw an interdisciplinary bow from theory to regulation, demonstrating the rising importance of process fairness for judgment and decision making.

Pricing procedural fairness

Stephan Tontrup

Max Planck Institute of Economics

Dennis Dittrich

Jacobs University Bremen

While distributional fairness has been in the prime focus of experimental economics literature with such prominent games as the dictator or the ultimatum game, procedural fairness has received comparably little attention so far. Focusing on a core element of procedural fairness we manipulate the transparency of a hierarchical decision making process. We design a game in which an agent has to solve a real effort task and is then assigned a payoff by a third party, who has to decide under uncertainty. If the assigned payoff is lower than the entitlement, the participants can file a costly

appeal. Even though a risk-averse agent should not do so, in the control treatment, nearly 100 percent of the participants whose results were underestimated filed an appeal. Once participants have been instructed about the information on which the third party has based its payoff decision, the frequency of appeals drops by 40%, even though this information had no relevance to the subjects' payoff. A replication of the experiments in China revealed that Chinese participants are insensitive to the transparency manipulation. They focus on the outcome rather than on the fairness of the procedure.

Biases in justice perceptions over time

Irina Cojuharenco

Universidade Catolica Portuguesa

Michael Bashshur

Universitat Pompeu Fabra

Perceptions of distributive, procedural and interactional justice have been shown to predict a number of important attitudes and behaviors in the workplace. The strong relationship among the dimensions of justice has been repeatedly commented upon (e.g., Colquitt et al. 2001) in the literature, yet reasons for it remain largely unexplored. We suggest that the interrelationship among the justice dimensions may partially have roots in a halo effect whereby ratings of justice on one dimension of organizational justice may impact perceptions of justice on the other dimensions. In Study 1 we find that fair and unfair aspects of events differentially persist in memory and that this has implications for the interrelationship among justice dimensions and justice outcomes. In Study 2 we examine more closely the mechanism of the halo effect, and demonstrate that unfair aspects affect perceptions of fair aspects both directly and indirectly, by affecting the general impression about the events overall justice.

Mandated justice

Yuval Feldman

Bar-Ilan University

Tom Tyler

New York University

A core concern of legal scholars is whether authorities ought to intervene in organizations or communities to promote obedience to the law more effectively. This question is examined by empirically testing the effect of mandating voice procedures in organization on employees' judgment of procedural justice as well as adherence to organizational authority. The paper reviews

two sets of competing theories: On one hand, research on the expressive function of law, as well as the role of expectation and entitlement in shaping justice, might suggest that mandating fair procedures should enhance their effectiveness. On the other hand, research on trust, reciprocity, perceived motivation and crowding out might suggest that state intervention is likely to harm the positive effect of voice procedures, which drive some of its power from being voluntary. A representative sample of employees in Israel filled in a questionnaire that examined their voice procedures in the context of their pay and benefit. We find that, overall, the perception of legally mandating voice triggered positive judgment of fairness, and a stronger effect of procedural justice on legitimacy and compliance.

Process fairness and dynamic consistency

Stefan Trautmann

Tilburg Institute for Behavioral Economics Research

Individual level fairness preferences have been proposed that consider process fairness in situations involving risk: players do not only compare their outcomes with other players in the current state of the world, but also consider outcome comparisons in states of the world that did not materialize. We show that such preferences raise issues of dynamic consistency. Allocations that are acceptable before the resolutions of the uncertainty may be rejected after the uncertainty is resolved. Dynamically consistent application of process fairness implies a rejection of separability of mutually exclusive branches in a dynamic decision tree. Dynamic consistency of agents who hold the process fairness view can therefore be theoretically justified through Machina's (1989) concept of 'resolute choice' for non-expected utility under uncertainty. As an application, a joint production setting with dynamically inconsistent fairness preferences is considered where organizations can increase efficiency by serving as a commitment device for process fairness.

POSTERS

NUM	PRESENTING AUTHOR	POSTER TITLE	AUTHORS
1.	Ahlgrimm Andrea	Automatic information processing in complex legal tasks	Ahlgrimm, Andrea
2.	Akiyama Manabu	Mediating effects of anticipated regret on risk perception	Akiyama, Manabu
3.	Anik Lalin	Selfish brokerage of social ties	Anik,Lalin -Norton, Michael
4.	Ayal Shahar	Varieties of cheating in the Wason selection task	Ayal, Shahar – Klar,Yechiel
5.	Baucells Manel	Time and probability as psychological distance	Baucells, Manel
6.	Bening Catharina	Feasibility versus desirability in mobility decision making	Bening, Catharina - Scholz, Roland
7.	Bolger Fergus	A model of affect, confidence & performance relationships	Bolger, Fergus – Karakulak, Cansu
8.	Brun Wibecke	Comparative biases in tourists	Brun, Wibecke - Larsen, Svein
9.	Bustreo Massimo	Imperfectly choices in everyday economic decision making	Bustreo, Massimo - Mazarotto, Edoardo - Russo,Vincenzo
10.	Chyau W.	Leader traits and behavior study of sun-tzu strategy by cta	Chyau,W. - Chen, J.
11.	Chyau W.	Using DEA to assess the performance of informative Blog	Chyau,W. - Chen, J.
12.	D'Addario Marco	Risk perception, affect and statistical format effects	D'Addario, Marco - Manfroï, Alessandra - Passerini, Gabriella - Bagassi, Maria - Macchi, Laura
13.	Dalgleish Len	A framework for measuring the quality of judgments.	Dalgleish, Len
14.	Davies Greg	Reconciling normative and behavioural investment decisions	Davies, Greg
15.	De Wild Arie	A framework for risk appetite using prospect theory	de Wild, Arie - van der Pijl, Gert

16.	Diecidue	Enrico	Multiple aspiration levels in decision under risk	Diecidue, Enrico
17.	Dieckmann	Nathan	An abbreviated measure of numeracy	Dieckmann, Nathan - Weller, Joshua - Tusler, Martin - Peters, Ellen
18.	Favrin	Maria-grazia	When things go wrong who is guilty and accountable?	Favrin, Mariagrazia
19.	Favrin	Maria-grazia	The risk perception of bank consultants	Favrin, Mariagrazia - Legrenzi, Paolo
20.	Filkukova	Petra	How wrong is a lie?	Filkukova, Petra - Teigen, Karl Halvor
21.	Gavaruzzi	Teresa	Promoting DRE: framing and presentation format of risk	Gavaruzzi, Teresa - Lotto, Lorella - Rumiati, Rino - Cisternino, Antonio
22.	Georgantzis	Nikolaos	The role of collective winners in individual decision making	Georgantzis, Nikolaos - Ebru, Ayça
23.	Gerstenberg	Tobias	Spreading the blame-allocating responsibility amongst agents	Gerstenberg, Tobias - Lagnado, David
24.	Giusberti	Fiorella	Integration information in judicial decision-making	Giusberti, Fiorella - Bensi, Luca - Nori, Raffaella - Gambetti, Elisa
25.	Gourdon	Amélie	Children's judgements and decisions under verbal uncertainty	Gourdon, Amélie - Beck, Sarah R.
26.	Hadar	Liat	Comparative Knowledge, Variety Seeking, and Consumer Choice	Hadar, Liat - Sood, Sanjay
27.	Hadjichristidis	Constantinos	On Kahneman's 2 system view: Monitoring can lead to errors	Hadjichristidis, Constantinos - Macchi, Laura - Lorenzini, Silvia - Bagassi, Maria - D'Addario, Marco
28.	Hahn	Luisse	Choice of product variety and appraisal of alternatives	Hahn, Luise - Hoelzl, Erik
29.	Hanoch	Yaniv	Are prisoners risk-takers: A question of domain and benefits	Hanoch, Yaniv
30.	Henggeler Antunes	Carlos	Interactive decision support based on multi-criterion models	Henggeler Antunes, Carlos

31.	Henriksson	Maria	Constructivist coding in decision making	Henriksson, Maria - Elwin, Ebba -
32.	Henriksson	Maria	Observational learning in categorization	Henriksson, Maria - Enkvist, Tommy - Juslin, Peter
33.	Hiemisch	Anette	Postdecisional consequences of biased predecision processing	Hiemisch, Anette
34.	Hilbig	Benjamin E.	A formal measurement model of the recognition heuristic	Hilbig, Benjamin E. - Pohl, Rüdiger F. - Erdfelder, Edgar
35.	Hirota	Sumire	Increased framing effects under disagreeing predictions	Hirota, Sumire
36.	Hoelzl	Erik	Evaluations of loan repayment profiles	Hoelzl, Erik
37.	Hoffmann	Janina	How can one get consumers to buy low-quality products?	Hoffmann, Janina - Marewski, Julian
38.	Hsieh	Chih-Hung	An on-line Delphi study for in-flight entertainment services	Hsieh, Chih-Hung - Wan, Tung,
39.	Hsieh	Chih-Hung	Compare Fuzzy and AHP methods-an empirical case	Hsieh, Chih-Hung - Wan, Tung
40.	Huber	Odilo W.	Perceived inflation: price increases and purchase frequency	Huber, Odilo W.
41.	Jekel	Marc	Selective Sampling and Strategy Performance	Jekel, Marc,
42.	Juliusson	Asgeir	Is reverse sunk cost effect: a rule rather than exception?	Juliusson, Asgeir
43.	Karlsson	Linnea	Individual differences and multiple cue judgment strategies	Karlsson, Linnea - Cokely, Edward
44.	Kleber	Janet	The endowment effect within strategic groups	Kleber, Janet - Glöckner, Andreas
45.	Koning	Lukas	Deception in ultimatum bargaining	Koning, Lukas - van Dijk, Eric - van Beest, Ilja - Steinel, Wolfgang
46.	Lau	Stephan	Decision uncertainty and the experience of decision freedom	Lau, Stephan - Weigel, Andre - Billerbeck, Antonia - Stahnke, Rebekka - Wenzel, Mario

47.	Lejarraga	Tomas	How illusion of control mediates an experience-based task	Lejarraga, Tomas - Lejarraga, Jose - Gaston-Breton, Charlotte
48.	Lenton	Alison	On the causes of mating skew in human mate choice	Lenton, Alison
49.	Levin	Irwin	Separate attitudes toward risk for gains and losses	Levin, Irwin - Weller, Joshua - Lauriola, Marco
50.	Lienert	Judit	Eliciting expert values for river rehabilitation	Lienert, Judit - Langhans, Simone - Reichert, Peter
51.	Lin	Hung- Chou	Effects of health information on variety-seeking behavior	Lin, Chien-Huang - Lin, Hung-Chou
52.	Lindskog	Marcus	Intuitive information integration with bayes' theorem	Lindskog, Marcus - Juslin, Peter - Winman, Anders
53.	Lindvall	Johan	Decisions from description and experience in real life	Lindvall, Johan
54.	Luan	Shenghua	Estimation with negatively correlated cues	Luan, Shenghua
55.	Manfrinati	Andrea	A reason to kill: When life expectancy affects moral judgment	Manfrinati, Andrea - Rubaltelli, Enrico - Mazzocco, Ketti - Lotto, Lorella - Rumiati, Rino
56.	Marcatto	Francesco	Not just for the money: Sunk-cost and investment of time	Marcatto, Francesco - Ferrante, Donatella
57.	Mastroberardino	Serena	Impulsivity and risk evaluation in children	Mastroberardino, Serena - Marucci, Francesco Saverio - Meo, Maria
58.	Mata	Rui	Should I stay or should I go? Foraging decisions and aging	Mata, Rui - Wilke, Andreas - Czienskowski, Uwe
59.	Merigo	Jose M.	Decision making with induced aggregation operators	Merigo, Jose M., - Gil Lafuente, Anna M. - Gil Aluja, Jaime
60.	Merigo	Jose M.	Fuzzy decision making with probabilities and OWA operators	Merigo, Jose M.
61.	Merigo	Jose M.	Using the generalized OWA operator in the weighted average	Merigo, Jose M.

62.	Meyer	Joachim	Dynamics of coping with security risks in a computer system	Meyer, Joachim - Ben Asher, Noam - Möller, Sebastian - Englert, Roman
63.	Michl	Theresa	Can Neuroeconomics better predict strategic decision-making?	Michl, Theresa - Taing, Stefan
64.	Michl	Theresa	How do (potential) entrepreneurs decide?	Michl, Theresa - Welpe, Isabell M. - Spörrle, Matthias - Picot, Arnold,
65.	Monti	Marco	Fast and frugal heuristics in investment decisions	Monti, Marco - Martignon, Laura - Gigerenzer, Gerd - Berg, Nathan
66.	Müller	Stephanie	Decisions, causal judgments and information search	Müller, Stephanie - Garcia-Retamero, Rocio - Galesic, Mirta - Maldonado, Antonio
67.	Nilsson	Håkan	The rationality of weighting and adding probabilities	Nilsson, Håkan - Juslin, Peter - Winman, Anders
68.	Nilsson	Håkan	Conjunctive probabilities and monetary incentives	Nilsson, Håkan - Rieskamp, Jörg
69.	Onculer	Ayse	Sweepstakes and vouchers: attitudes toward promotions	Onculer, Ayse - Laurent, Gilles - Prokopec, Sonja
70.	Ostermann	Tanja	The influence of repetition and feedback on coherence shifts	Ostermann, Tanja
71.	Otto	Philipp	Matching markets with overly competitive agents	Otto, Philipp - Bolle, Friedel
72.	Pascual-Ezama	David	Theory of planned behavior applied to individual investor	Pascual-Ezama, David - Scandroglio, Barbara - Gil-Gomez de Liaño, Beatriz
73.	Pedersini	Riccardo	Repeated choices in visual search	Pedersini, Riccardo - Navalpakkam, Vidhya - Horowitz, Todd S. - Wolfe, Jeremy M.
74.	Péntek	Imre	Adaptation in the iterated prisoner's dilemma	Péntek, Imre
75.	Pfiffelmann	Marie	Elicitation of a finite slope weighting function	Pfiffelmann, Marie

76.	Pingenot	Alleene	Objective measurement of SA and D M in patient simulation	Pingenot, Alleene - Adams, Lisa - Johnston, Mary Ann - Craven, Dawn
77.	Pollai	Maria	Prediction & hindsight bias of consumption-related emotions	Pollai, Maria - Hoelzl, Erik - Possas, Flavia
78.	Rakow	Tim	More information can help or harm decisions from experience	Rakow, Tim - Miler, Katherine
79.	Rondeel	Eefje	To do or not to do: Cognitive control in moral decisions	Rondeel, Eefje - Holland, Rob - Kempen, Masja - Wijngaards, Niek - Van Knippenberg
80.	Rontini	Fabio	A model of the conservatism	Rontini, Fabio
81.	Rosenboim	Mosi	The economic payoff of mistrust	Malul, Miki - Rosenboim, Mosi - Shavit, Tal
82.	Rusconi	Patrice	Misweighing clues: A feature-positive effect in belief update	Rusconi, Patrice - Russo, Selena - Cherubini, Paolo
83.	Salvi	Carola	Competition and group effect in mechanization process	Salvi, Carola
84.	Sanchez-Navarro	Juan Pedro	Emotional influence on decision making	Sanchez-Navarro, Juan Pedro - Martínez-Selva, Jose María - Puebla, Tomás
85.	Savadori	Lucia	Communicating the risk of having a child with Down syndrome	Savadori, Lucia - Pighin, Stefania - Barilli, Elisa - Bonalumi, Sara - Bruno, Francesca - Cremonesi, Laura - Ferrari, Maurizio - Ferrari, Augusto
86.	Schelske	Stefan	The thinking about the termination of goal pursuit	Schelske, Stefan - Hiemisch, Anette
87.	Sereevinyayut	Piya	To Trim or Not To Trim: Outlier Identification, Scaling Effects, and Forecast Aggregation	Sereevinyayut, Piya
88.	Seri	Raffaello	The analytic hierarchy process and the theory of measurement	Seri, Raffaello - Bernasconi, Michele - Choirat, Christine

89.	Seri	Raffaello	When do you take advice? A model of ethical judgement	Seri,Raffaello - Secchi,Davide
90.	Sirota	Miroslav	Individual differences in bayesian reasoning	Sirota, Miroslav
91.	Snook	Brent	Modelling offender decision making	Snook, Brent - Kavanagh, Jennifer - Dhami, Mandeep
92.	Sousa Pereira	Nuno	Deservingness and demand for health care	Sousa Pereira, Nuno - Szrek, Helena - Leite, Rui
93.	Szanto	Richard	Gamer show experiences in non-cooperative bargaining	Szanto, Richard
94.	Tedeschi	Marcello	Tag effect: Is choice outcome consistent with preference?	Tedeschi, Marcello - Baghi, Ilaria - Rubaltelli, Enrico
95.	Tessari	Tommaso	1€ ≠ 1€. Banknotes vs coins in economic behaviour	Tessari, Tommaso - Rubaltelli, Enrico, - Rumiati, Rino
96.	Tikir	Aysel	Climate change: Perceptions and responses in switzerland	Tikir, Aysel
97.	Tokarchuk	Oksana	The construction of time preference in experiments	Tokarchuk, Oksana
98.	Tontrup	Stephan	The expressive function of contracts	Tontrup, Stephan - Kurschilgen, Michael
99.	Tusche	Anita	Revealing implicit consumer choices from brain activation	Tusche, Anita - Haynes, John-Dylan
100.	Vajda	Beáta	Communication and decision making in Hungarian healthcare	Vajda, Beáta
101.	Vasak	Tomas	The red-light effect: pilots' use of gut feelings.	Vasak, Tomas - Ayton, Peter - Hola, Zuzana
102.	Von Helversen	Bettina	The influence of age on multiple-cue judgments	von Helversen, Bettina - Mata, Rui - Olsson, Henrik
103.	Wahl	Ingrid	Trust and power: Mechanisms underlying tax compliance	Wahl, Ingrid - Kastlunger, Barbara - Kirchler, Erich - Lang, Erich - Muehlwerth, Barbara

104.	Weiss	Jie	Test of a utility model for alcohol consumption among youth	Weiss, Jie
105.	Weller	Joshua	Personality predictors of domain-specific risk	Weller, Joshua - Tikir, Aysel
106.	Zaleskiewicz	Tomasz	Gender differences in social preferences in children	Zaleskiewicz, Tomasz - Helka, Anna
107.	Zhao	Jiaying	On the provenance of judgments of conditional probability	Zhao, Jiaying - Shah, Anuj - Osherson, Daniel
108.	Zilioli	Samuele	Trust in e-commerce: The role of intuition and analysis	Zilioli, Samuele, - Iannello, Paola - Balconi, Michela - Antonietti, Alessandro

LIST OF PARTICIPANTS

(as registered on 07/28/09 – 9 a.m.)

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