



Subjective Probability, Utility and Decision Making

21st - 25th August 2011

Programme & Abstract Book



Scientific committee

Gaëlle Villejoubert (chair), Kingston University
Fergus Bolger, Durham University
Daniel Oppenheimer, Princeton University
Elena Reutskaja, University of Navarra

Local organising committee

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Department of Psychology
School of Social Science
Faculty of Arts and Social Sciences
Kingston University

Sponsors

Kingston Business School
Cambridge University Press
Inon

Website

<http://spudm23.eadm.eu>



Dear SPUDM participant,

On behalf of the Scientific Committee (Fergus Bolger, Daniel Oppenheimer, Tim Rakow and Elena Reutskaja), it is my great pleasure to welcome you to the 23rd Subjective Probability, Utility, and Decision Making conference, sponsored by European Association for Decision Making. We hope you will enjoy your visit to Kingston upon Thames and Kingston University.

We are honoured and delighted with your presence at this conference and we hope that you will find many opportunities to be enthused by the latest findings in our field, through the wide range of exciting talks, symposia, and poster presentations available. SPUDM has always been a memorable event, thanks to its inclusive and friendly of atmosphere and we hope that old friends and new colleagues will find this SPUDM23 remains true to its spirits. On that note, we will honour the memory of Willem Wagenaar, who organised one of the earliest SPUDM conferences, with a presentation by Gideon Keren on Sunday.

Every conference has its personal touch and SPUDM23 is no different. As we are a healthy and growing community—a true melting pot of research students and faculty from Australia, Austria, Canada, the Czech Republic, France, Germany, Ireland, Israel, Italy, Japan, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan, the Netherlands, the United Kingdom, and the United States of America!—we felt it was important that you would have enough opportunities to meet and greet new colleagues and old friends, discuss and exchange on the research in our field both during and after the presentations.

To this effect, we tried to design a programme where you can pick and choose not only exciting topics but also a range of experiences ranging from varying formats—plenary and parallel talks, symposia, small sessions of poster presentations—to activities such as the fantastic Early Career Networking Event or a social time out to enjoy the river Thames, Kingston upon Thames, or venture in nearby London on Wednesday afternoon.

Let me conclude this letter of welcome with a few thanks to those who supported the organisation of the conference you are about to attend. In particular, we would like to thank Prof Martin McQuillan, Dean of the Faculty of Arts and Social Sciences, Prof John Davis, Head of the School of Social Science, Prof Philip Terry, Director of Research for Psychology, and Prof Frédéric Vallée-Tourangeau, Director of Studies for Psychology, for organizational and administrative support. We also thank Kingston University Business School for their financial support and Inon for their logistics support. And finally, a special thank you to all of those who volunteered their time and helped locally at some point or another during the preparation of this meeting: Justine Embury, Marlène Abadie, and Frédéric Tourangeau as well as Nancy Baldwin, Andy Belsham, Amélie Gourdon, Lisa Hall, Marie Juanchich, Ali Kazemi, Neda Kerimi, Ashley Pennoyer, Nick Shanley, Les Spaines, Thomas Spengler, and Jo Van Herwegen. You'll likely meet some of them as well as a host of SPUDM23 Helpers at the conference desk and in the rooms and they will be delighted to assist you with any query you may have during the conference.

On behalf of us all, I wish you a very pleasant SPUDM23 in Kingston upon Thames.

Gaëlle Villejoubert

Guidelines for symposia, presentations, and posters

General information. Each presentation room will be equipped with a PC (with MS PowerPoint) and a projector. There will also be the possibility to plug your PC laptop directly to the projector. Mac users should bring their own adaptor and check their presentation before their session.

IMPORTANT.

To ensure the smooth running of the meeting all speakers should upload their presentation on the PC computer and/or check it ideally between 8am and 9am on the day in which their presentation is scheduled and in any case before the start of the session. A SPUDM23 Helper will be in the room to assist you if need be.

Symposia guidelines. All symposia will be held in room JG0002. Convenors should ensure that symposia presenters have uploaded their presentation on the computer before the start of the symposium. There is no requirement for symposia presentations and convenors are free to chair their symposium as they see fit as long as (1) the total time for presentations and discussion lasts no longer than 2 hours and, (2) the symposium includes at least a 10 minute panel discussion with all presenters at the end of the symposium.

Oral presentation guidelines. Presenters must ensure that their presentation is ready before the start of their session. The talk should last no longer than 15 minutes, followed by 5 minutes for questions and discussion. The last speaker in each paper session is the designated chairperson for that session. Chairpersons are kindly asked to make sure that their session starts on time and that presenters respect the time limit (inform speakers when they have 5, and 1 minute left). The speaker presenting immediately before the Chairperson is kindly asked to chair during the Chairperson's presentation. All speakers are kindly asked to respect these time limits as a courtesy to other speakers in the session as well as to allow participants to move between sessions if they wish to.

Poster presentation guidelines. Poster presentations will take place in parallel to the talks and symposia in room JG3004. There will be two different small poster sessions each day, on Monday, Tuesday and Thursday: a morning session, between 11:30 and 13:30, and an afternoon session, between 15:30 and 17:30. Presenters must ensure that their poster is up before the start of their session and taken down after their session has finished. Posters should be no wider than 940mm and no taller than 1830mm. All poster presenters are kindly asked to be by their posters, at least during the first hour of their allocated session so that delegates may ask them questions. The poster number in the programme corresponds to the number of the poster board where the poster should be displayed. Velcro tape will be available in the room to attach the posters to the board.

General information. For organisational and safety reasons we remind participants that access to the conference rooms will be allowed only to individuals showing the conference badges included in the delegate pack. The plenary talks in the Clattern Lecture Theatre will be filmed and may include shots of the audience. If you do not want to be filmed, you may still attend the lecture in JG0001 where it will be broadcasted live.

Internet access. A username and password for wifi internet access will be provided to all registered participants. Please see your delegate pack for more information.

Sunday

21st August 2011

14.00 - 17.30 Registration Penrhyn Road Reception

16.00 - 16.30 Opening and Welcome Clattern Lecture Theatre

16.30 - 17.00 Tribute Lecture to Willem Albert Wagenaar
by Professor Gideon Keren Clattern Lecture Theatre

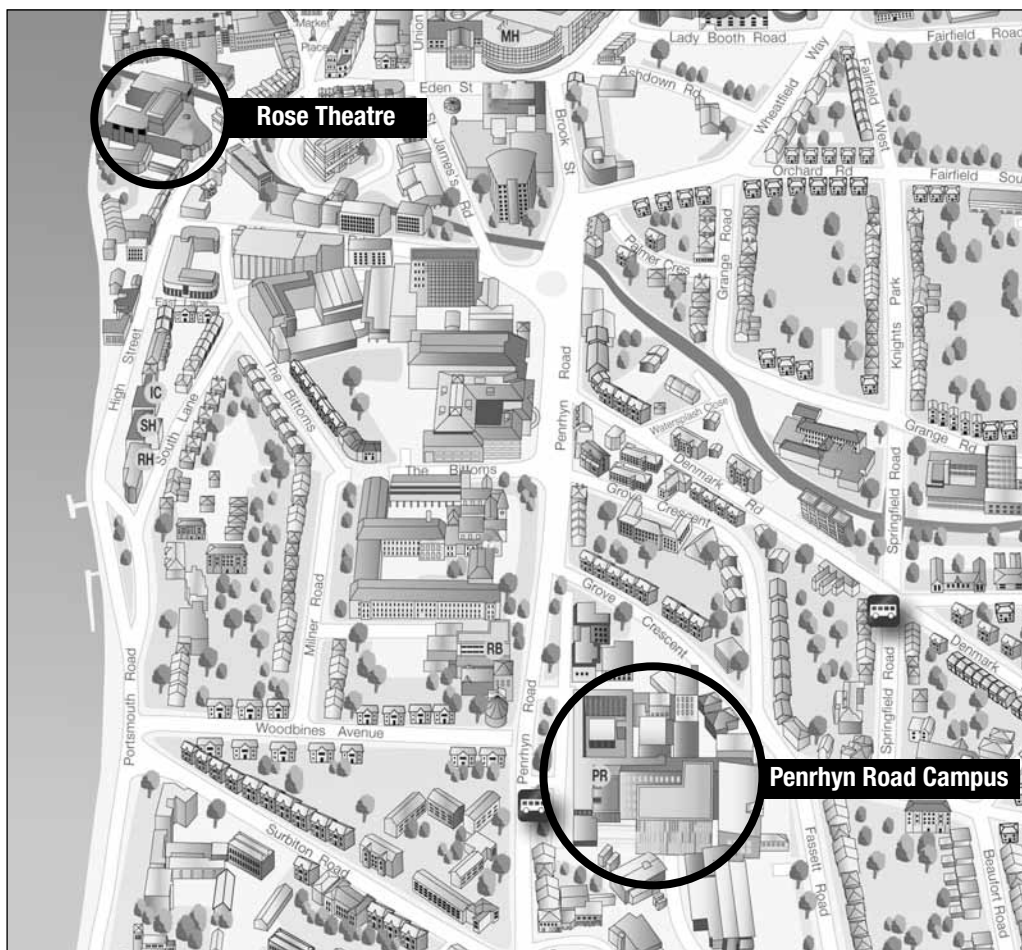
17.00 - 18.00 Presidential Address
See page 32

Persuasion and deception in decision-making: From optical illusions to mirages

Professor Nicolao Bonini

Clattern Lecture Theatre

18.30 - 21.00 Welcome Drinks Reception Rose Theatre



09.00 - 10.00

See page 33

Diversity and Similarity in Preference and Choices

Professor Peter Ayton City University, UK

Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30

Coffee Break

10.30 - 12.30

Parallel Sessions

JG2007, JG2008, JG2009, JG2010

12.30 - 14.30

Lunch Break

PARALLEL SESSIONS

Intuition in DM

Room JG2007

Chair: Volka Thoma

----- 10.30 -----

Deliberation and intuition may be advantageous in different domains

Hal Arkes

See page 34

----- 10.50 -----

Deliberation's blind sight: How does distraction affect judgement processes?

Janina Hoffmann

See page 35

----- 11.10 -----

Is it better to deliberate in causal decision making?

Stefan Mangold

See page 36

----- 11.30 -----

The boost from below: How dominated options increase choice satisfaction

Boris Maclejevsky

See page 37

----- 11.50 -----

The interaction between task's characteristics and thinking mode determines decisions' effectiveness

Zohar Rusou

See page 38

----- 12.10 -----

The role of presentation mode and capacity on the 'deliberation without attention' effect

Volker Thoma

See page 39

Social JDM I

Room JG2008

Chair: Asli Selim

----- 10.30 -----

Adaptive decision making in groups and individuals

Juliane Kaemmer

See page 40

----- 10.50 -----

Group decision making under risk and ambiguity

Enrico Diecidue

See page 41

----- 11.10 -----

Information search processes underlying proportion dominance in donation decisions: The way you search predicts the way you choose

Janet Kleber

See page 42

----- 11.30 -----

On Perceived Criticality and Expected Effort

Tobias Gerstenberg

See page 43

----- 11.50 -----

One person in the field is not a warrior: Self-construal, perceived ability to make a change and pro-social decision making

Natalia Karelaia

See page 44

----- 12.10 -----

Why do the eyes have it?

Asli Selim

See page 45

Morning Sessions

10.30 - 12.30	Symposium 1	JG0002	please see overleaf
11.30 - 13.30	Poster Session 1	JG3004	please see overleaf

PARALLEL SESSIONS

JDM heuristics Room JG2009

Chair: *Gaëlle Villejoubert*

----- 10.30 -----

Discriminating between Ecological, Bayesian, and Dual-Process theories of JDM

Maarten Speekenbrink

See page 46

----- 10.50 -----

Evaluating Adaptive Toolboxes:

A Bayesian Approach

Benjamin Scheibehenne

See page 47

----- 11.10 -----

The descriptively rational decision maker

Shira Elqayam

See page 48

----- 11.30 -----

The distance heuristic as an alternative to the multiple-tools approach for probabilistic inferences

Rüediger Pohl

See page 49

----- 11.50 -----

The effort heuristic: A source of bias in job choice

David Comerford

See page 50

----- 12.10 -----

Bayesian reasoning by experience

Gaëlle Villejoubert

See page 51

JDM and Health 1 Room JG2010

Chair: *Hilary Bekker*

----- 10.30 -----

Assessing different measures of risk taking propensity in a population with high HIV prevalence

Helena Szrek

See page 52

----- 10.50 -----

How to achieve procedural satisfaction and accuracy in surrogate decision making

Ralph Hertwig

See page 53

----- 11.10 -----

Methods for studying the cognitive causes of diagnostic error in medicine:

A systematic review

Martine Nurek

See page 54

----- 11.30 -----

Obesity in men and in women: Not the same story? Evidence from decision-making studies

Gilly Koritzky

See page 55

----- 11.50 -----

The genetic basis of risk taking: DAT1 polymorphism predicts risk taking in the Balloon Analogue Risk Task (BART)

Rui Mata

See page 56

----- 12.10 -----

Why do patient narratives bias hypothetical dialysis decision making:

Is it a characteristic of the reader?

Hilary Bekker

See page 57

09.00 - 10.00

See page 33

Diversity and Similarity in Preference and Choices

Professor Peter Ayton City University, UK

Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30

Coffee Break

10.30 - 12.30

Symposium 1

JG0002

11.30 - 13.30

Poster Session 1

JG3004

12.30 - 14.30

Lunch Break

POSTER SESSIONS

Preference and Choice

Room JG3004

- | | | |
|-----|--|-------|
| 01) | Imagery and affect in Swiss farmers: Climate change mitigation decisions | p.94 |
| 02) | Influencing factors of the willingness to support climate policy measures | p.95 |
| 03) | Advancing affective rationality: Judgment of social, economic and environmental harms and benefits in energy-related decision-making | p.96 |
| 04) | Measuring social value orientation | p.97 |
| 05) | The excess choice effect for volunteer recruitment | p.98 |
| 06) | Whom would you hire? Differences in expert-novice decision-making strategies | p.99 |
| 07) | Visualization cognitive style, numeracy and decision Making | p.100 |
| 08) | The mechanism of fast value integration | p.101 |
| 09) | When no choice is better than some choice: The case of negative outcomes | p.102 |
| 10) | KAIROS - About the right time to decide: A self evaluation test of individual decision making behaviour | p.103 |
| 11) | Vaccination decisions and violations of the principle of invariance | p.104 |
| 12) | More choice is not necessarily more variety: An experiment with prescription drug plans | p.105 |
| 13) | Expanded access to free prescription drugs and its impact on social welfare. The case of cholesterol-lowering agents in Italy. | p.106 |
| 14) | Girls' versus parents' preferences for HPV vaccination: A discrete choice experiment | p.107 |
| 15) | Identifying components of decision aid interventions that enable informed decision making about dialysis modality | p.108 |
| 16) | Influence of causal beliefs on judgment and decision making in medical and financial domain | p.109 |
| 17) | The effect of financial literacy and emotions on intent to control personal budget: A study among Israeli college students | p.110 |
| 18) | What does an affective-oriented product really mean for consumers? | p.111 |
| 19) | Capturing consumer food choice in action: An experience sampling study of consumer decision making | p.112 |
| 20) | Compulsive buying behaviour: Obsessive acquisition, collecting or hoarding? | p.113 |
| 21) | Fluency attribution and the outcomes of product placement | p.114 |

Morning Sessions

10.30 - 12.30

Parallel Sessions

See pages 6 / 7

SYMPOSIUM 1

Recent Methodological and Analytical Advances in Decision Research Room JG0002

Convener:

Joseph Johnson

Discussant:

Michael Schulte-Mecklenbeck

*Interactive Eye-tracking for Decision Research:
Decision Moving-Window Methodology*

Ana Franco-Watkins

See page 83

Response Dynamics:

How Continuous Response Monitoring Can Test Modern Process Models

Gregory Koop

See page 84

*How to Compare Process Models for Decision Making:
A Multiple Measure Maximum Likelihood
Approach to Model Evaluation*

Marc Jekel

See page 85

*A Response Time Methodology for
Tracing Processes in Decision Strategies*

Mario Fific

See page 86

*Crowdsourcing Empirical Research:
Amazon Mechanical Turk*

Gabriele Paolacci

See page 87

14.30 - 16.30

Parallel Sessions

JG2007, JG2008, JG2009, JG2010

16.30 - 17.00

Coffee Break

PARALLEL SESSIONS

Emotion and Judgement Room JG2007

Chair: Arlette Baer Deucher

----- 14.30 -----

Emotion regulation in negotiation

Simone Moran

See page 58

----- 14.50 -----

Judgments of the emotional intensity of musical experiences

Thomas Schaefer

See page 59

----- 15.10 -----

Heating up versus cooling down in children's and adolescents risky choice

Bernd Figner

See page 60

----- 15.30 -----

Measuring experienced utility of students: Comparing the day reconstruction method with a real time method to assess emotional experiences

Hans-Rüdiger Pfister

See page 61

----- 15.50 -----

The inverse relation between benefits and losses in risk judgment and acceptance:

Affect heuristic, trade-off avoidance or ignorance?

Joanna Sokolowska

See page 62

----- 16.10 -----

Quasi-naturalistic risky scenarios and the influence of mood induction

Arlette Baer Deucher

See page 63

Social JDM II Room JG2008

Chair: Benjamin Hilbig

----- 14.30 -----

A sip or a guzzle? Dividing water in ultimatum and dictator game scenarios

Astrid Kause

See page 64

----- 14.50 -----

Cooperation without awareness and decisions from experience in minimal social situations

Briony Pulford

See page 65

----- 15.10 -----

Social communication and discrimination: A video experiment

Ro'i Zultan

See page 66

----- 15.30 -----

Social preferences and risk taking in interpersonal and individual choice contexts

Johannes Leder

See page 67

----- 15.50 -----

Split or steal? Cooperative behavior when the stakes are large

Dennie Van Dolder

See page 68

----- 16.10 -----

Two sides of one coin: On the interplay of person and situation in shaping social dilemma decision making

Benjamin Hilbig

See page 69

Afternoon Sessions

14.30 - 16.30	Symposium 2	JG0002	please see overleaf
15.30 - 17.30	Poster Session 2	JG3004	please see overleaf

PARALLEL SESSIONS

Confidence and Optimism

Room JG2009

Chair: *Adam Harris*

----- 14.30 -----

A systematic effect of access to information on impression formation

Gaël Le Mens

See page 70

----- 14.50 -----

Confidence-enhanced performance: Does it exist and if so how does it work?

Fergus Bolger

See page 71

----- 15.10 -----

Assessing the chances of success: Overconfident or just confused?

Robin Hogarth

See page 72

----- 15.30 -----

Confidence and strength of preference in decisions under risk

Daniel Navarro-Martinez

See page 73

----- 15.50 -----

The act of decision making as a source of entrepreneurs' unwarranted confidence

Peter Boyle

See page 74

----- 16.10 -----

The unrealism in unrealistic optimism research? Testing the statistical artifact hypothesis

Adam Harris

See page 75

JDM and Health II

Room JG2010

Chair: *Frank Renkewitz*

----- 14.30 -----

Trust and worry and the public decision to vaccinate against the swine flu and other preventive behavior

Danielle Timmermans

See page 76

----- 14.50 -----

Assessing small non-zero perceptions of chance: The case of H1N1 (swine) flu risks.

Wandi Bruine De Bruin

See page 77

----- 15.10 -----

Concreteness and simplicity explain the effect of numerical and graphical risk formats on perceived likelihood and choice

Danielle Timmermans

See page 78

----- 15.30 -----

Flu shots, mammograms, and the perception of probabilities

Katherine Carman

See page 79

----- 15.50 -----

Fluency and efficacy: Biases in judgments of pharmaceutical effectiveness

Saima Ghazal

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----- 16.10 -----

The influence of narrative versus statistical information on perceiving vaccination risks

Frank Renkewitz

See page 81

14.30 - 16.30	Symposium 2	JG0002
15.30 - 17.30	Poster Session 2	JG3004
16.30 - 17.00	Coffee Break	

POSTER SESSION 2

Decision making under risk and uncertainty Room JG3004

01)	Asymmetric discounting in valuation of reward points	p.115
02)	Whether it is reality or imaginary, people are still spurred on by their previously sunk costs	p.116
03)	What should the rabbit do? Risk defusing in children's decision making	p.117
04)	Attitude towards risk in willingness-to-pay-tasks: Bayesian modeling of cumulative prospect theory and a linear portfolio	p.118
05)	What does the owner think and feel? Query theory and subjective feelings of possession in the endowment effect	p.119
06)	Finding Happy Sequences on the iPad	p.120
07)	Risk mitigation decisions for low probability-high consequence events	p.121
08)	Emotion regulation strategies, need-for-arousal and ventursomeness differently predict risk-taking in the Hot And Cold Columbia Card Task	p.122
09)	Simulated altitude and risk taking: Higher reflection effect in 3000 m than on sea level	p.123
10)	Does risk-taking depend on the risk-return profile given?	p.124
11)	Memory-biased preferences: How accessibility affects judgments and decision-making prospects	p.125
12)	Decision making with the uncertain probabilistic weighted average and the theory of expertons	p.126
13)	Decision making with distance measures in a unified framework between the probability, the weighted average and the OWA operator	p.127
14)	Stability in development across context in ambiguity aversion effects	p.128
15)	Why the glass half full is not always the glass half empty: Risk framing, context and representation in a developmental framework	p.129
16)	Choosing the choice rule	p.130
17)	A recency weighting approach to predict decisions from experience	p.131

Afternoon Sessions

10.30 - 12.30

Parallel Sessions

See pages 10 / 11

SYMPOSIUM 2

Using visual representations to improve JDM Room JG0002

Convener:

Mandeep K. Dhami

Discussant:

Denis Hilton

Pictures and Frames:

On Avoiding Framing Effects Using Visual Representations

Mandeep K. Dhami

See page 89

Effective communication of risks:

How can we increase condom use and STD screening in young adults?

Rocio Garcia-Retamero

See page 90

Advantages and disadvantages of using visual displays to convey risk/benefit tradeoffs in medical treatment situations

Erika Waters

See page 91

Different People Benefit From Different Representations of Statistical Information

Wolfgang Gaissmaier

See page 92

Visual Representations Reduce Conjunction and Disjunction Fallacies:

Testing the Overlapping Classes Hypothesis of Fuzzy-Trace Theory

Valerie F. Reyna

See page 93

09.00 - 10.00

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Making Decisions and Chance Events: Age, Imagination and Control

Professor Liz Robinson University of Warwick, UK
Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30

Coffee Break

10.30 - 12.30

Parallel Sessions

JG2007, JG2008, JG2009, JG2010

12.30 - 14.30

Lunch Break

PARALLEL SESSIONS

Emotion and DM Room JG2007

Chair: Emily Hancock

----- 10.30 -----

Life, death and hedonic adaptation

Mandeep Dhani

See page 134

----- 10.50 -----

A face you can trust? Facial physiognomy affects strategic behavior in trust games

Constantin Rezesco

See page 135

----- 11.10 -----

Decomposing trust. An ambiguity versus a risky setting

Kim Fairley

See page 136

----- 11.30 -----

Emotions and risky decision-making: Evidence from neuroimaging and neuropsychiatry

Cinzia Giorgetta

See page 137

----- 11.50 -----

Intuitive politicians or intuitive penitents? Regret aversion, accountability and justification in the decoy effect

Terry Connolly

See page 138

----- 12.10 -----

The effect of state shame and guilt on risky decision-making behaviour

Emily Hancock

See page 139

Social JDM III Room JG2008

Chair: Ilan Yaniv

----- 10.30 -----

The effects of social exclusion on selective exposure

Tobias Greitemeyer

See page 140

----- 10.50 -----

Social comparison in decisions for others: Considering multiple gift recipients leads to unique but less-liked gifts

Mary Steffel

See page 141

----- 11.10 -----

The impact of depression on self-other discrepancies in decision making

Rocio Garcia-Retamero

See page 142

----- 11.30 -----

Understanding emotions in advice taking

Ilona De Hooge

See page 143

----- 11.50 -----

What's important depends upon how I see us: The influence of self-construal on self-choice versus advice-giving

Jason Stornelli

See page 144

----- 12.10 -----

When a good outcome for another person is a poor comparison for oneself: On the role of agency in resolving conflicted social preferences

Ilan Yaniv

See page 145

Morning Sessions

10.30 - 12.30	Symposium 1	JG0002	please see overleaf
11.30 - 13.30	Poster Session 1	JG3004	please see overleaf

PARALLEL SESSIONS

Consumer Choice Room JG2009

Chair: Jenny Kerss

----- 10.30 -----

Affective forecasts and consumer decisions: Exploring moderating effects of product type and belief in adaptation

Erik Hoelzl

See page 146

----- 10.50 -----

Gotta catch them all: the role of set-completion in consumer decisions

Ellen Evers

See page 147

----- 11.10 -----

Advertising Energy Saving Programs: The Potential Environmental Cost of Emphasizing Monetary Savings

Wandi Bruine De Bruin

See page 148

----- 11.30 -----

The role of decisions from description and decisions from experience in online consumer choice

Dirk Wulff

See page 149

----- 11.50 -----

The value of nostalgic products

Filippo Cordaro

See page 150

----- 12.10 -----

Two investigations of how numeric ability and experience compensate for age when making consumer choices

Jenny Kerss

See page 151

Judgement of uncertainties and values I Room JG2010

Chair: Katya Tentori

----- 10.30 -----

Are bets with the odds 3.1 more likely than bets with the odds 21/10? How odds in sports betting are perceived as probabilistic information

Patric Andersson

See page 152

----- 10.50 -----

Expectations of random sequences: Normative, heuristic or both?

Stian Reimers

See page 153

----- 11.10 -----

Incidental and integral affect in the construction of prices

Daniel Västfjäll

See page 154

----- 11.30 -----

On the fixed and relative nature of perceived randomness

Ilan Fischer

See page 155

----- 11.50 -----

Deep risk and time: Adaptive estimation of preferences

Eric Johnson

See page 156

----- 12.10 -----

Probability versus confirmation judgments: A comparison in accuracy and test-retest reliability

Katya Tentori

See page 157

09.00 - 10.00

See page 133

Making Decisions and Chance Events: Age, Imagination and Control

Professor Liz Robinson University of Warwick, UK
Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30

Coffee Break

10.30 - 12.30

Symposium 3

JG0002

11.30 - 13.30

Poster Session 3

JG3004

12.30 - 14.30

Lunch Break

POSTER SESSIONS

Risk perception and risk communication Room JG3004

- | | | |
|-----|--|-------|
| 01) | When do we shoot the messenger? Judging the responsibility of a speaker who gives uncertain statements | p.194 |
| 02) | Context effects on the interpretation of verbal expressions of speed acceleration | p.195 |
| 03) | Climate change: Values, risk perceptions and theory of planned behaviour | p.196 |
| 04) | The role of causal beliefs in climate change perceptions and preferences for policy actions | p.197 |
| 05) | Health risks of electromagnetic fields: Exploring differences in lay and expert beliefs about health risks to improve risk communication | p.198 |
| 06) | Lay people's mental models about cardio-metabolic health risks: A call for better risk communication | p.199 |
| 07) | Risk perception of pharmaceutical drugs: Expert judgment in the European regulatory network | p.200 |
| 08) | Musical genre, sub-culture, and differences in harm perception of illicit substances among music festival visitors | p.201 |
| 09) | Linguistic multi-person decision making with probabilities and OWA operators | p.202 |
| 10) | Information intermediation and risks in construction | p.203 |
| 11) | The advanced numeracy test for highly educated samples (ANT-E): A brief, adaptive, validated test of risk and statistical comprehension | p.204 |
| 12) | The effect of misleading graphs on the comprehension of health and political communications: Who is more susceptible to misinterpret data? | p.205 |
| 13) | When higher bars are not larger quantities: On individual differences in the use of spatial-to-conceptual mappings in graph comprehension | p.206 |

Morning Sessions

10.30 - 12.30

Parallel Sessions

See pages 14 / 15

SYMPOSIUM 3

Challenges and advances in modeling risky decision making Room JG0002

Conveners:

Thorsten Pachur and Renata Suter

Discussant:

Neil Stewart

Hierarchical Bayesian parameter estimation for models of decision under uncertainty

Hakan Nilsson

See page 183

Parameter stability in cognitive models of risky choice: An analysis of prospect theory

Thorsten Pachur

See page 184

*Building bridges between alternative Accounts of Risky Choice:
How Does Prospect Theory Reflect the Use of Heuristics?*

Renata Suter

See page 185

On the coefficient of variation as a predictor of risk sensitivity

Elke Weber

See page 186

Quantum theory applied to risky decision making behavior

Jerome Busemeyer

See page 187

13.30 - 14.30	EADM General Assembly	Clattern Lecture Theatre
14.30 - 16.30	Parallel Sessions	JG2007, JG2008, JG2009, JG2010
16.30 - 17.00	Coffee Break	

PARALLEL SESSIONS

Eye tracking JDM Room JG2007

Chair: *Luca Polonio*

----- 14.30 -----

Contextual and individual variability in risky choice: Evidence for multiple strategies including overall probability of winning heuristic

Vinod Venkatraman
See page 158

----- 14.50 -----

Exploring the links between eye movements and choice behaviour: A process-level investigation of choice anomalies in risky choice

Christoph Ungemach
See page 159

----- 15.10 -----

Eye tracking of risky choices

Neil Stewart
See page 160

----- 15.30 -----

Focusing on what you own: Biased information uptake due to ownership

Nathaniel Ashby
See page 161

----- 15.50 -----

Now you see it, now you don't: Integrating attention theories and metrics in information processing approaches to decision making

Ana Franco-Watkins
See page 162

----- 16.10 -----

Unrevealing mental processes in interactive decision-making: An eye-tracking study

Luca Polonio
See page 163

Social JDM IV Room JG2008

Chair: *Sabine Pahl*

----- 14.30 -----

Emotional regulation and dysregulation in social decision making: Insight from fMRI and abnormal populations

Alessandro Grecucci
See page 164

----- 14.50 -----

Effects of advice consistency on stated and revealed trust

Matt Twyman
See page 165

----- 15.10 -----

The N-effect in strategic interaction

Stephan Tontrup
See page 166

----- 15.30 -----

When rationality and social preferences conflict: The role of self-control in social exchange situations

Eliran Halali
See page 167

----- 15.50 -----

When regulating emotions is worth money: Evidence from ultimatum and trust games

Yoella Bereby-Meyer
See page 168

----- 16.10 -----

Would I bet on beating you? Subtly increasing other-focus helps overcome egocentrism

Sabine Pahl
See page 169

Afternoon Sessions

14.30 - 16.30	Symposium 4	JG0002	please see overleaf
15.30 - 17.30	Poster Session 4	JG3004	please see overleaf

PARALLEL SESSIONS

Risk perception and communication

Room JG2009

Chair: *Marie Juanchich*

----- 14.30 -----

A social decision making experiment on risk and inequality

Kirsten Rohde

See page 170

----- 14.50 -----

Does moving from a war zone change emotions and risk perceptions? A field study of Israeli students

Shosh Shahrabani

See page 171

----- 15.10 -----

Individual differences in graph literacy: Overcoming denominator neglect in risk comprehension

Yasmina Okan

See page 172

----- 15.30 -----

Interpretations of risk quantifiers in business management settings: The influence of personality and cultural orientation

Christina Butler

See page 173

----- 15.50 -----

Public response to recent crises: A longitudinal look at fear, risk-related behaviors and support for different policy measures

William Burns

See page 174

----- 16.10 -----

Uncertain, tactful or simply cautious? An investigation of the functions of linguistic quantifiers of uncertainty

Marie Juanchich

See page 175

Judgement of uncertainties and values II

Room JG2010

Chair: *Benjamin Hilbig*

----- 14.30 -----

A causal model theory of judgment

Abigail Sussman

See page 176

----- 14.50 -----

Are the highest performers the most impressive?

Jerker Denrell

See page 177

----- 15.10 -----

Dialectical instructions are not needed to achieve the wisdom of many in one mind

Chris White

See page 178

----- 15.30 -----

Has something happened? Using judgment to detect regime change.

Nigel Harvey

See page 179

----- 15.50 -----

Haunted by a Doppelgänger: Similarity effects in multiple-cue judgments

Bettina Von Helversen

See page 180

----- 16.10 -----

On the (sole?) role of recognition fluency in comparative judgments

Benjamin Hilbig

See page 181

14.30 - 16.30	Symposium 4	JG0002
15.30 - 17.30	Poster Session 4	JG3004
16.30 - 17.00	Coffee Break	

POSTER SESSION 2

Social influences in JDM Room JG3004

- | | | |
|-----|---|-------|
| 01) | Act responsibly or let yourself go? Effects of self-signaling through green consumption | p.207 |
| 02) | Facial perception, decision depends on attention | p.208 |
| 03) | Delegating decisions: Using others to make difficult choices | p.209 |
| 04) | Prices need no preferences: Social influences in pain markets | p.210 |
| 05) | Rational order effects in responsibility attributions | p.211 |
| 06) | The impact of self-perceived social pressure on charitable giving | p.212 |
| 07) | The role of oxytocin in social norm enforcement | p.213 |

Morality, affect and intuition in JDM

- | | | |
|-----|---|-------|
| 08) | Affect and intuition in decision making | p.214 |
| 09) | Research without rationality? | p.215 |
| 10) | Is it in the eyes? Using eye-tracking to study clinical intuition in novice, intermediate and very experienced clinicians | p.216 |
| 11) | Cognitive processes in clinical intuition | p.217 |
| 12) | Mindful decision makers: The influence of mindfulness on decision making style, competence, and outcomes | p.218 |
| 13) | Are we Catholics or Kantians? A study on moral balancing | p.219 |
| 14) | Consequentialist versus deontological judgement and moralising in public opinions about health incentives | p.220 |
| 15) | Distortion of moral judgments in a decision situation with a strong temptation | p.221 |
| 16) | Decision making in shooting task:
How arousal and valence affect the stereotype accessibility and racial bias | p.222 |
| 17) | Influences on the ethical reasoning of tax practitioners:
Exploring the individual, the context and professional socialization | p.223 |
| 18) | When worlds collide: Mood regulation, affect, and morality | p.224 |

Afternoon Sessions

10.30 - 12.30

Parallel Sessions

See pages 18 / 19

SYMPOSIUM 4

Contributing to individuals, groups, and public causes

Room JG0002

Convener:
Tehila Kogut

Discussant:
Ilana Ritov

*Pro-social behaviour in moral dilemmas:
The role of dissonance reduction in donation decisions*

Stephan Dickert
See page 189

Microfinance Decisions
Deborah Small
See page 190

*Ambient odors and evaluation of an environmental public good:
the role of semantic congruence*

Nicolao Bonini
See page 191

*Pseudo-inefficacy: when awareness about those we cannot help deter us from helping those
we can help*

Daniel Västfjäll
See page 192

*Protective donation: When refusing a
request for a donation increases the sense of vulnerability*

Tehila Kogut
See page 193

Plenary Symposium

Attention and Search in Decision Making

09.00 - 11.00 Plenary Symposium Clattern Lecture Theatre / *JG0001

Convener: **Thomas Hills**

Discussant: **Neil Stewart**

Executive processing in information search

Thomas Hills - University of Basel
See page 227

Exploring some curious dissociations between distinctive variation in pre-decisional search and the experience-based choices that follow

Tim Rakow - University of Essex
See page 228

Making assessments while taking sequential risks

Tim Pleskac - Michigan State University
See page 229

The effects of losses on attention provide sufficient conditions for their impact on maximization and individual differences

Eldad Yechiam - Technion - Israel Institute of Technology
See page 230

The impact of affect on decisions from experience

Renato Frey - University of Basel
See page 231

11.00 - 11.30 Coffee Break

11.30 - 12.15 Jane Beattie Award Lecture Clattern Lecture Theatre / *JG0001

See page 232 **Everything you ever wanted to know about metacognitive fluency but were afraid to ask**

Daniel Oppenheimer - Princeton University, USA

12.15 - 13.00 De Finetti Prize Lecture Clattern Lecture Theatre / *JG0001

See page 233 **Agency and the construction of social preference: Between inequality aversion and prosocial behavior**

Shoham Chosen-Hillel - Hebrew University of Jerusalem, Israel

13.00 - 14.30 Lunch

14.30 - 16.00 SPUDM Early Career Networking Event JG0002

* Live video feed from The Clattern Lecture Theatre displayed in JG0001

SPUDM Early Career Networking Event

Organisers

Neda Kerimi

Stockholm University
neda@psychology.su.se

Amélie Gourdon

Birmingham University
axg800@bham.ac.uk

About the event

We will start the Early Career Event at 13:00 by having lunch together. Then networking activities and talks will start from 14:00. Prof. Robin M. Hogarth and Dr. Cleotilde Gonzalez will be speaking at the event. We will wrap up about 16:30 and will make our way to a pub alongside the river Thames.

About the speakers

Prof. Robin M. Hogarth holds a PhD from the University of Chicago, USA, where he has been a faculty member for more than 20 years, and director of the Center for Decision Research for 10 years. He also had been a faculty member at the INSEAD, France and at London Business School, UK. He is now an ICREA (<http://www.icrea.cat/web/home.aspx>) Research Professor at Universitat Pompeu Fabra, Spain. He published more than a hundred papers, books and chapters, of which more than a half as first author. He is currently associate editor of the Journal of Decision Making, secured many grants and contributed, as supervisor or more indirectly, to the success of many PhD students.

Prof. Robin M. Hogarth will be talking about "How NOT to succeed".

Dr. Gonzalez is Associate Research Professor at Carnegie Mellon, USA, one of the most innovative and leading schools in decision making research. She is the founding director of the Dynamic Decision Making Laboratory (www.cmu.edu/ddmlab) and is also affiliated with the Human Computer Interaction Institute, the Center for Cognitive Brain Imaging, the Center for Neural Basis of Cognition, all at Carnegie Mellon University, and with the Center for Research on Training at University of Colorado. She is part of the editorial board of the Human Factors Journal, and the Associate Editor of Journal of Cognitive Engineering and Decision Making. She has received many research grants and successfully published a large number of articles in notable journals.

Dr. Gonzalez will be talking about how to succeed and stay motivated in academia.

09.00 - 10.00

See page 235

Reflections on Prospect Theory

Professor Daniel Kahneman Princeton University, USA

Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30

Coffee Break

10.30 - 12.30

Parallel Sessions

JG2007, JG2008, JG2009, JG2010

12.30 - 14.30

Lunch Break

PARALLEL SESSIONS

Sampling and information search Room JG2007

Chair: Henrik Olsson

----- 10.30 -----

An ecological analysis of search

Tomas Lejarraga

See page 236

----- 10.50 -----

Comparability effects in probability judgments: Evidence for a sequential sampling process

Timothy Pleskac

See page 237

----- 11.10 -----

Delaying information search

Yaniv Shani

See page 238

----- 11.30 -----

Knowledge of statistical properties of numerical variables

Marcus Lindskog

See page 239

----- 11.50 -----

On the decision to explore new alternatives

Kinneret Teodorescu

See page 240

----- 12.10 -----

Sampling from social environments lead to apparent self-enhancement effects

Henrik Olsson

See page 241

Financial DM I Room JG2008

Chair: Craig MacMillan

----- 10.30 -----

A loser can be a winner: Comparison of two instance-based learning models in a market entry competition

Cleotilde Gonzalez

See page 242

----- 10.50 -----

Do investors put their money where their mouth is? Stock market expectations and trading behavior

Christoph Merkle

See page 243

----- 11.10 -----

Transactional problem content in cost discounting: Parallel effects of probability and delay

Mike Oaksford

See page 244

----- 11.30 -----

Is investment behavior influenced by changes in information feedback and investment flexibility?

Stefan Zeisberger

See page 245

----- 11.50 -----

Stable context-dependent preferences? The origin of market price-dependent valuations

Nina Mazar

See page 246

----- 12.10 -----

Sacred values, moral outrage and the moral limits of markets

Craig MacMillan

See page 247

Morning Sessions

10.30 - 12.30	Symposium 5	JG0002	<i>please see overleaf</i>
11.30 - 13.30	Poster Session 5	JG3004	<i>please see overleaf</i>

PARALLEL SESSIONS

Judgment and choice over time Room JG2009

Chair: *Katherine Milkman*

----- 10.30 -----

Can too much information make us lose track of time? The effects of cognitive load on the processing of frequency and duration

Isabell Winkler
See page 248

----- 10.50 -----

Predictions of what can and what will happen? A matter of probability or extremity?

Karl Halvor Teigen
See page 249

----- 11.10 -----

So when are you loss averse? Testing the S-shaped function in pricing allocation tasks

Tal Shavit
See page 250

----- 11.30 -----

Testing the memory-bias account of the planning fallacy: The effect of task similarity and familiarity on task duration prediction bias

Kevin Thomas
See page 251

----- 11.50 -----

The effect of military service on soldiers' time preferences? Evidence from Israel

Eyal Lahav
See page 252

----- 12.10 -----

The temporal discrimination effect: An audit study in academia

Katherine Milkman
See page 253

Preferences and choices I Room JG2010

Chair: *Leah Borovoi*

----- 10.30 -----

A measurement model of recognition in multi-alternative decision-making

Philip Beaman
See page 254

----- 10.50 -----

Application of the weighted-additive rule in preferential decisions: A cognitive-developmental approach

Stefanie Lindow
See page 255

----- 11.10 -----

Relative theory of choice: Preference change for risky choices

Petko Kusev
See page 256

----- 11.30 -----

Decisions based on whether benefits bring to mind cost: A new perspective for the sunk cost effect

Bernadette Kamleitner
See page 257

----- 11.50 -----

Spoilt for Choice: The role of counterfactual thinking in the choice and reversibility paradoxes

Rebecca Hafner
See page 258

----- 12.10 -----

The influence of psychological distance on choosing between enriched and impoverished options

Leah Borovoi
See page 259

09.00 - 10.00
See page 235

Reflections on Prospect Theory

Professor Daniel Kahneman Princeton University, USA
Clattern Lecture Theatre and John Galsworthy Building Room JG0001*

10.00 - 10.30 Coffee Break

10.30 - 12.30 Symposium 5 JG0002

11.30 - 13.30 Poster Session 5 JG3004

12.30 - 14.30 Lunch Break

POSTER SESSIONS

Judgement, heuristics and biases Room JG3004

- | | | |
|-----|--|-------|
| 01) | When does cognitive control lead to biases? Evidence from memory and stock profit estimation tasks | p.296 |
| 02) | Heuristic bias, conflict, and rationality in decision-making | p.297 |
| 03) | Fast and frugal heuristics in food choice | p.298 |
| 04) | Do people build option or strategy routines in multi-attribute decisions? Two tasks?
Two answers | p.299 |
| 05) | A concept of a platform for data-driven approach to detect cognitive biases | p.300 |
| 06) | Same world, different perceptions: Systems of measurement affect judgments | p.301 |
| 07) | Proximity, progression and probabilistic judgments | p.302 |
| 08) | Familiarity drives the subadditivity effect: Evidence from semantic priming | p.303 |
| 09) | The impact of brand name and alleged method of production on perceived taste | p.304 |
| 10) | Rhyme as reason in commercial and social advertising | p.305 |
| 11) | How framing and numerical information affect judgments when reading a news story | p.306 |
| 12) | Speculating from absent evidence: A Bayesian network approach | p.307 |
| 13) | Aversive feedback and incomplete knowledge in probabilistic inferences | p.308 |
| 14) | Probability judgements and decisions weights under two different probability formats | p.309 |
| 15) | Facilitative effect of natural frequencies in Bayesian reasoning is not only about nested sets | p.310 |
| 16) | Sequentially simulated outcomes: Kind Experience versus non-transparent description | p.311 |
| 17) | More or less information is needed? Evidence from a soccer prediction experiment | p.312 |
| 18) | Biases and imperfect utility forecasts | p.313 |
| 19) | Overview of drivers of affective forecasting in the consumer context | p.314 |
| 20) | Perceptions of randomness: The consequences of viewing sequences sequentially | p.315 |
| 21) | The recognition heuristic and knowledge use | p.316 |
| 22) | The unreasonable persistence of cognitive biases:
Why biases are not merely 'phantom information' | p.317 |

Morning Symposium

10.30 - 12.30

Parallel Sessions

See pages 24 / 25

SYMPOSIUM 5

Clinical Reasoning Room JG0002

Conveners:

Olga Kostopoulou and York Hagmayer

Discussant:

Valerie Reyna

Causal vs. non-causal strategies in diagnosis and treatment decisions

York Hagmayer

See page 285

Correctly remembering clients in mental health care

Cilia Witteman

See page 286

Do clinical psychologists intuitively extend the bereavement exclusion for major depression to other stressful life events?

Nancy Kim

See page 287

Information distortion in clinical diagnostic judgements

Olga Kostopoulou

See page 288

14.30 - 16.30	Parallel Sessions	JG2007, JG2008, JG2009, JG2010
16.30 - 17.00	Coffee Break	
19.00 - 23.00	Conference Dinner	The Lensbury, Teddington Lock, TW11 9NU

PARALLEL SESSIONS

Decision from experience Room JG2007

Chair: *Christine Platzler*

----- 14.30 -----

Decisions from experience and the potential of gentle rule enforcement

Ido Erev

See page 260

----- 14.50 -----

Envisioning Rare Events: Distributional assumptions, biased learning, and systemic underweighting

Shellwyn Weston

See page 261

----- 15.10 -----

Over- and under-sensitivity to rare events: Distinct processes or similar experiences?

Davide Marchiori

See page 262

----- 15.30 -----

Sample allocation in decisions from experience

Nathaniel Phillips

See page 263

----- 15.50 -----

Unpacking decisions from description and experience

Craig Fox

See page 264

----- 16.10 -----

When the quality of an abstracted rule determines the decision strategy: Rule- and exemplar-based reasoning in decisions from memory

Christine Platzler

See page 265

Financial DM II Room JG2008

Chair: *Michel Handgraaf*

----- 14.30 -----

Axe the tax: Taxes are disliked more than equivalent costs

Christopher Olivola

See page 266

----- 14.50 -----

Irrational cynicism: When communication increases buyers' skepticism

Eyal Ert

See page 267

----- 15.10 -----

Money with personality: How we maintain, invest, and spend inherited money

Orit Tykocinski

See page 268

----- 15.30 -----

When one year feels longer than 12 months: The impact of temporal frames and personal relevance on financial estimates

Gulden Ulkumen

See page 269

----- 15.50 -----

Winning the battle but losing the war: The psychology of debt management

Moty Amar

See page 270

----- 16.10 -----

Private payment versus public praise: Effects of reward type on energy conservation

Michel Handgraaf

See page 271

Afternoon Sessions

14.30 - 16.30	Symposium 6	JG0002	please see overleaf
15.30 - 17.30	Poster Session 6	JG3004	please see overleaf

(Pick up and return coach at Penrhyn Road and Seething Wells)

PARALLEL SESSIONS

Risk preference Room JG2009

Chair: *Tal Shavit*

----- 14.30 -----

Anomalies to Markowitz's hypothesis and a prospect-theoretical interpretation

Marc Scholten

See page 272

----- 14.50 -----

*Ex ante moral hazard:
Increased or decreased risk taking?*

Job Van Wolferen

See page 273

----- 15.10 -----

Framing effects and cognitive reflection

Darren Duxbury

See page 274

----- 15.30 -----

Mishap or justification?

Whether segregating losses is bad or good depends on responsibility for the outcome

Dilney Goncalves

See page 275

----- 15.50 -----

*Risky framing effects in choices, ratings,
and rankings*

Anton Kuehberger

See page 276

----- 16.10 -----

Whose money is it anyway?

Using prepaid incentives in experimental economics to create a natural environment

Tal Shavit

See page 277

Preferences and choices II Room JG2010

Chair: *Joachim Meyer*

----- 14.30 -----

All stress is not created equal: Comparing the effects of different stressors on decision making

Joseph Johnson

See page 278

----- 14.50 -----

Decision-making competence in adolescents with and without a paternal history of substance use disorders

Andrew Parker

See page 279

----- 15.10 -----

Eliminating discomfort: Managing decision difficulty through pre-decisional shifting

Stephanie Carpenter

See page 280

----- 15.30 -----

Extraneous factors in judicial decisions

Shai Danziger

See page 281

----- 15.50 -----

Metacognitive uncertainty and learning decisions

Pantelis Pipergias Analytis

See page 282

----- 16.10 -----

The effect of expertise on risk taking behavior in a computer security context

Joachim Meyer

See page 283

14.30 - 16.30	Symposium 6	JG0002
15.30 - 17.30	Poster Session 6	JG3004
16.30 - 17.00	Coffee Break	

POSTER SESSION 6

Confidence, optimism, and time in JDM Room JG3004

- | | | |
|-----|---|-------|
| 01) | Covariation estimates of continuous variables | p.318 |
| 02) | Things you must believe to see: Existing knowledge dictates interpretation of covariation data | p.319 |
| 03) | Outcome evaluation: winning vs. avoiding a loss. | p.320 |
| 04) | Overconfidence in judgment, valuation and investment decision: Bankers versus students | p.321 |
| 05) | Higher height, higher ability: Judgment confidence as a function of building floor | p.322 |
| 06) | Planning for the Planning Fallacy: Causes and solutions for unrealistic expectations about project delivery | p.323 |
| 07) | Length effects in judgmental forecasting of various time series types | p.324 |
| 08) | Elicitation task bias in intertemporal choice experiments | p.325 |

Cooperation, coordination and naturalistic DM Room JG3004

- | | | |
|-----|--|-------|
| 09) | Credit decision-making in banks | p.326 |
| 10) | Information use and decision making by silver commanders in the emergency services | p.327 |
| 11) | An introduction to the Sandhurst problem solving model | p.328 |
| 12) | Theory of mind and the ultimatum game: An investigation into the development of young children's performance | p.329 |
| 13) | Prevention focus fosters trust | p.330 |
| 14) | Moral self-licensing and moral cleansing effects in public good games | p.331 |
| 15) | Giving: A conformity heuristic? | p.332 |
| 16) | Environmental sampling in social dilemmas ? The impact of rare events | p.333 |

Afternoon Sessions

10.30 - 12.30

Parallel Sessions

See pages 28 / 29

SYMPOSIUM 6

Can intuition outperform deliberation?

Room JG0002

Conveners:

Gaëlle Villejoubert and Marlène Abadie

Discussant:

Robin Hogarth

Deliberation without attention requires fuzzy representations

Marlène Abadie

See page 291

Is it better to think unconsciously or to trust your first impression?

A reassessment of Unconscious Thought Theory

Laurent Waroquier

See page 292

Probability matching reconsidered from an ecological perspective

Wolfgang Gaissmaier

See page 293

Evidence for two modes of thinking in preference

Steven Sloman

See page 294

Intuitive and unconscious cognitive processes in Fuzzy-Trace Theory:

An advanced approach

Valerie Reyna

See page 295

Persuasion and deception in decision-making: From optical illusions to mirages

Clattern Lecture Theatre

Sunday 16:30 - 17:30

Nicolao Bonini

University of Trento

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The European Union has issued directives to promote informed consumer decision-making and to prevent misleading practices between firms and consumers. In the USA, the recently approved Dodd-Frank Wall Street Reform and Consumer Protection Act also aims at protecting consumers against abuse, unfairness and deception. The reasons in favour of these norms range from consumer material advantage, through the consumer's right to freedom of choice, to the stability and efficiency of markets. I shall discuss cases of persuasion with and without deception, as well as problematic cases. I shall outline the potential contribution of psychological research to the implementation and interpretation of norms.

Diversity and similarity in preference and choices

Clattern Lecture Theatre and Room JG0001*

09:00 - 10:00

Peter Ayton

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The use of diversity to improve dependability in human affairs is ubiquitous and age-old (“Don't put all your eggs in one basket”, “Two heads are better than one”). However despite evidence for a diversification heuristic sometimes people fail to appreciate the benefits of diversity and even, in some contexts, show aversion to it. Moreover even in their attempts to diversify people tend to make the same choices as each other. In social contexts, where the outcomes of two or more human choices are mutually interdependent, people's tendencies to make similar choices have some interesting implications.

Monday

Tuesday

Wednesday

Thursday

Intuition in DM

Deliberation and intuition may be advantageous in different domains

John Galsworthy Building Room JG2007

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Wilson, Gigerenzer, and other researchers have presented evidence that going with one's "gut feeling" may lead to superior decision outcomes than if one had deliberated about the decision. However decision analysts have presented evidence supporting the opposite conclusion. We attempted to resolve this conundrum by using the methodology of Wilson et al. (1993, *Personality and Social Psychology Bulletin*, 19, 331-339) with two different types of stimuli: aesthetic stimuli (art posters) and utilitarian items (e.g., pens, toothbrushes, etc.). Participants either did or did not deliberate before rating four different posters or four different utilitarian items. Participants then took home the one out of the four that they liked the best. Three weeks later participants were queried about how much they still liked the item they had selected. They were also asked for how much they would be willing to sell the selected item back to the experimenter (willingness to accept, or WTA). There were two important results. With utilitarian stimuli, those who had deliberated assigned a higher WTA than did those who had not deliberated, precisely contrary to the Wilson results and consistent with our prediction. Second, with aesthetic stimuli the reasons and no reasons groups did not differ in their WTA, thus failing to replicate the Wilson et al. (1993) results.

Intuition in DM**Deliberation's blind sight: How does distraction affect judgment processes?****John Galsworthy Building Room JG2007****Janina Hoffmann**University of Basel
janina.hoffmann@unibas.ch**Additional authors:**Bettina Von Helversen
Joerg RieskampUniversity of Basel
University of Basel

People often have to make judgments when being distracted by other tasks. How does distraction affect people's judgments? To answer this question we followed a context-contingency approach to human cognition. According to this approach the judgment process is a function of the context in which it takes place. In general, distractions should reduce people's cognitive control, which should foster judgment processes that require less cognitive control, such as exemplar-based strategies. Exemplar-based strategies may rely on associative processes such as automatic retrieval from memory, so that they require low processing capacities. In contrast, rule-based strategies, that have often been suggested for quantitative judgments, assume that people abstract a specific rule that describes the relationship between the cues and the criterion, which is considered as requiring a high amount of cognitive control. We conducted an experiment in which the participants in the training phase learned to judge the criterion value of objects based on multiple cues while they concurrently solved an easy or a difficult memory task or were not distracted. In a subsequent test phase they predicted the criterion values for old and new objects. Learning performance did not differ between the conditions. Surprisingly, distracted participants made more accurate judgments than undistracted ones for new objects. A strategy comparison suggests that as predicted participants under distraction relied on exemplar-based strategies, whereas without distraction half of the participants were best described by a rule-based strategy. This suggests that when cognitive resources are limited people rely on associative processes, which can prove useful in tasks that are not solvable by a rule-based strategy.

Intuition in DM

Is it better to deliberate in causal decision making?

John Galsworthy Building Room JG2007

Stefan MangoldDepartment of Psychology, University of Göttingen
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York Hagmayer Department of Psychology, University of Göttingen

Unconscious Thought Theory (UTT, Dijksterhuis & Nordgren, 2006) claims that unconscious processing of information yields better decisions when compared to decisions made after deliberate (conscious) processing or decisions made immediately. Several related studies that investigated choices in the domain of complex decision problems were able to provide evidence for the propositions of UTT. The present study was designed in order to investigate the potential merits of unconscious thought when making decisions with respect to a causal system. Causal decision making is assumed to involve inferring the potential consequences of different actions from mental causal models (Sloman & Hagmayer, 2006) and causal reasoning is often considered to be a form of deliberate, rule-based reasoning (Sloman, 1996). Therefore, we expected better choices after deliberation. Two experiments investigated causal decision making using the UTT paradigm. In Experiment 1, participants had rated different options that had differential causal impact. In Experiment 2, participants had to rate the effectiveness of two possible interventions based on different instantiations of a causal system. Results showed that more effective actions were chosen, when participants were asked to deliberate rather than to turn their attention to another task or to decide immediately. These results add to other findings indicating that the superiority of unconscious thought may be limited to specific decision making situations.

Intuition in DM**The boost from below: How dominated options increase choice satisfaction****John Galsworthy Building Room JG2007****Boris Maciejovsky**Imperial College London
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Christopher Olivola

Warwick Business School

Previous research shows that increasing choice set size can sometimes reduce choice/purchase likelihood and satisfaction, while adding asymmetrically dominated options alters choice patterns. In this paper, we explore the impact of adding fully dominated options to choice sets (i.e., options that are worse on every dimension). Across 4 studies, we find that adding dominated options to choice sets increases satisfaction with, and willingness to pay for, chosen options, without affecting the actual choice patterns. We also show that participants are not aware of this effect. We present a process-level theory to explain our findings.

Intuition in DM

The interaction between task's characteristics and thinking mode determines decisions' effectiveness

John Galsworthy Building Room JG2007

Zohar Rusou

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Identifying which thinking mode yields better decisions has been a major subject of inquiry by decision making researchers in the field of dual-processing theories. Yet, studies investigating which thinking mode is preferable in decision making, show contradictory results. We assume that the ambiguity is due to the variability in experimental conditions utilized in the studies, which may be more compatible with one mode of thought or the other. Our hypothesis is that decisions' effectiveness depends on the level of compatibility between the nature of the decision making task and the thinking mode employed while making the decision. In our study, Preference Consistency (transitivity) was used as a dependent measure. Thinking modes and tasks' characteristics were manipulated in a factorial design. Participants were asked to make a set of binary choices between pairs of stimuli suitable to intuitive settings (faces in experiment 1 or urban streets' photographs in experiment 2) or to analytical settings (mathematical multiplications in experiment 1 or an average estimation in experiment 2). Half of the participants were assigned to conditions designed to induce intuitive thinking while the others to analytical thinking. Preference consistency (transitivity) was measured according to Lee Amir & Ariely 2009. A two way interaction was found between mode of thought and stimuli settings. Choices between intuitive stimuli were more consistent when relying more on the intuitive mode of thought, while choices between analytical stimuli were more consistent when relying more on the analytical mode of thought. The outcomes have supported our hypothesis. Preference Consistency was significantly higher when thinking mode and decision's task characteristic were compatible.

Intuition in DM**The role of presentation mode and capacity on the 'deliberation without attention' effect****John Galsworthy Building Room JG2007****Volker Thoma**University of East London
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Recent research has shown that participants whose attention was directed to deliberating a complex choice problem made poorer choices than participants whose attention was distracted away from the problem (i.e., using 'unconscious thought'; Dijksterhuis and Nordgren, 2006). This 'deliberation-without-attention-effect' (DWAE) is explained as a result of the 'low capacity' of conscious thought. Alternative explanations claim that DWAE has less to do with the effects of capacity and more with the encoding of information. Recently, DWAE was challenged as an artefact resulting from participants forming online impressions and suboptimal recall attempts. The current study investigates the role of recall of choice-relevant attributes and employs different presentation modes (serial versus parallel) that allow easier impression formation: Slides of four cars' attributes were shown to 210 students. In the 'parallel' conditions, all 12 attributes for a car were shown on one slide. In the 'serial' condition each attribute was shown for 8 seconds, as in the original study. After a deliberation or distraction period of four minutes participants were asked to pick the best car and then to recall as many attributes as possible. The current study replicated the DWAE for serial conditions with better choices after a distraction period. There was no difference in optimal choice in the parallel groups. This result challenges the position that 'unconscious thought' exhibits more capacity in the sense of the 'amount of information a choice involves', as the information was exactly the same in both serial and parallel conditions. The recall scores were identical across conditions. Parallel presentation of information aids choice situations, probably by allowing easier impression formation.

Adaptive decision making in groups and individuals

John Galsworthy Building Room JG2008

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It has been observed that individuals adapt their decision strategies to the structure of the environment, for instance, by learning over time which strategy will yield the best outcomes (Rieskamp & Otto, 2006). The current study aims at extending research on the adaptiveness of decision strategies in individuals to the group setting and focuses on two prototypical decision strategies, Weighted Additive (WADD) and Take-The-Best (TTB). We conducted an experiment with 120 participants, who worked either individually or in groups of two on a paired-comparison task. The task was to predict which of two fictitious oil drilling sites would provide more oil (Czienskowski, 2004). Participants were provided with six cues per oil drilling site which they could access for free. As a second manipulation, we varied the payoff structure of the task. For one half of the participants the task had an underlying WADD-friendly payoff structure, and for the other half the task had an underlying TTB-friendly payoff structure. We found that both, individuals and groups, were able to learn to select the appropriate strategy in the respective environments over time. However, there was a general strong tendency to access (too) many cues. Moreover, we found slight differences between groups and individuals: While groups seemed to apply the respective appropriate strategy in a faster and more consistent manner, individuals seemed to alternate more between strategies. As reasons we explore and discuss social validation and deliberation processes by drawing on post-test questionnaire data and audio tapes of the group discussions. Further, we address the question of how aware people are of their own decision strategy. Future research questions and possible implications are discussed.

Social JDM I

Group decision making under risk and ambiguity

John Galsworthy Building Room JG2008

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Hardly ever do managers in organizations know exactly what will be the consequences of their actions. Often they might not even be able to make precise judgments concerning the probabilities with which outcomes will occur. In order to cope with this severe uncertainty managers usually seek advice and consult with others before deciding on a course of action. Often, critical decisions are made by a group of decision makers for example in partnerships or boards of directors. Addressing these issues, our study explores the effects of discussing decisions with others and the need to aggregate individual preferences into a group decision in the presence of either risk (probabilities of outcomes are precisely defined) or ambiguity (probabilities of outcomes are vague). We conducted a laboratory experiment in which participants made binary choices between sure amounts of money and different risky and ambiguous financial prospects. Participants made their decisions in three different settings: a) individually without prior social interactions, b) individually after discussing decisions with other participants and c) as groups of three. Overall we found that groups are on average less risk averse and make risk-neutral decisions more often than individuals at all probability levels. With respect to ambiguity attitude we do not find a significant difference in average ambiguity premia between individual decisions and group decision. However, we do find that group decisions are ambiguity neutral more often than individual decisions and similarly that group discussions increase the number of ambiguity neutral choices in subsequent individual decisions.

Information search processes underlying proportion dominance in donation decisions: The way you search predicts the way you choose

John Galsworthy Building Room JG2008

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People differ in their preferences to maximize the absolute number vs. the proportion of people helped when evaluating humanitarian aid projects. Our study investigates information search processes and individual differences in number comprehension as predictors of the preference for proportions (i.e., proportion dominance) vs. the absolute amount of help provided. In a repeated choice task that required comparison of two projects at a time, we manipulated the amount of people in need, the absolute help and the proportional help. For each comparison, we measured participants' (n=56) preferences, their information search pattern with a closed mouselab paradigm, and numerical comprehension with a numeracy measure. Results showed that the tendency to maximize the proportional help was predicted by alternative-based information search, shorter information acquisition, and higher numeric ability. The tendency to maximize the amount of absolute help was also predicted by alternative-based information search but a higher amount of acquired information. These results provide a crucial insight into the underlying processes of donation decisions when information about people in need is presented in numerical format. Proportion dominance in charitable giving can be predicted by sequential information acquisition and differences in numerical comprehension, both of which are likely precursors to emotional reactions and judgments of project effectiveness.

On perceived criticality and expected effort

John Galsworthy Building Room JG2008

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We advance a novel probabilistic model of criticality in group contexts. According to our model, an individual agent's criticality is based on the responsibility the agent would have for each possible group result weighted by the probability with which the different results are likely to occur. Based on Chockler and Halpern's (2004) structural model of responsibility attribution, our model makes predictions for a great variety of group structures. We also predict a close coupling between how critical an agent is and how much effort she is expected to exert. To test the predictions of our model experimentally, we varied the structure of the group task and the skill levels of the agents. In three experiments, we demonstrate a close model fit with participants' judgments of (i) how critical individual agents are viewed for their group's result and (ii) how much effort is expected from each agent. Participants acted as external observers and first rated the chances that each team was likely to succeed and then rated the perceived criticality or expected effort of each agent. In Experiments 1 and 2 ($N = 111$), we found that participants' criticality ratings in disjunctive tasks in which different agents can substitute for each other increased with the relative skill of an agent. The more skilled an agent was relative to his group members, the more she was perceived to be critical. In conjunctive tasks in which every member of the team needs to perform well, the majority of participants judged each agent highly critical irrespective of their underlying skill. Experiment 3 ($N = 61$) found an almost identical pattern of judgments for ratings on expected effort ($r = .94$) confirming the strong relationship between perceived criticality and expected effort.

Social JDM I

One person in the field is not a warrior: Self-construal, perceived ability to make a change and pro-social decision making

John Galsworthy Building Room JG2008

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This paper tests the hypothesis that cultivating an individual's collective self promotes socially conscious decision making both directly and indirectly through increased perceived ability to make a change. We suggest that individuals for whom separateness dominates the self-definition (i.e., an independent self-construal) assume that their individual actions do not make an environmental or social impact and therefore engage less in socially conscious behaviors as compared to individuals for whom connections to others dominate the self-definition (i.e., an interdependent self-construal). We label this phenomenon 'One person in the field is not a warrior'. Study 1 revealed that the relationship between trait self-construal and self-reported socially responsible behavior is mediated through perceived ability to make a change. Study 2 primed self-construal by activating either separateness or connectedness and showed that separateness reduces perceived ability to make a change. Connectedness increases this belief as well as the expectations that others would also be willing to exert an effort for common interests. Study 3 assessed the effect of primed self-construal on actual pro-social behavior. Participants had a chance to voluntarily contribute to an NGO by providing straplines for their 'future donation campaigns'. Participants primed with separateness invested less effort in this pro-social activity than participants in the connectedness and the neutral conditions. Overall, our results emphasize the importance of 'feeling not alone in the field' for triggering pro-social behavior.

Why do the eyes have it?

John Galsworthy Building Room JG2008

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The mere presence of eye-like visual stimuli has been shown to make people more generous. This phenomenon is typically explained by claiming that eyes remind us of others and therefore trigger social evaluation concerns. We tested this conjecture in a web-based experiment by comparing the effect of eye-like stimuli with that of direct reminders of other people. We replicated the previous findings for eyes, but found that direct reminders of other people had a different effect, typically leading to smarter decisions. Therefore, we reject the conjecture that eyes simply remind us of other people. Instead, eyes may trigger submissiveness, as is often observed among animals.

JDM heuristics

Discriminating between ecological, Bayesian, and dual-process theories of JDM

John Galsworthy Building Room JG2009

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Three main approaches to judgements and decision-making are rational Bayesian, ecological rational, and dual-process theory. Whilst showing substantial theoretical differences, the extent to which these theories are empirically distinguishable is not overly clear. All are flexible frameworks, allowing clever researchers to make apparently contradictory results consistent with their favoured theory. To forward the debate, this talk will discuss the problems associated with empirically distinguishing between the three theories, and propose optimal sequential experimental design as a technique which may help in this matter.

JDM heuristics

Evaluating Adaptive Toolboxes: A Bayesian Approach

John Galsworthy Building Room JG2009

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Many theories in psychology assume that people possess a repertoire of strategies from which they choose when making decisions or solving problems. While this cognitive 'toolbox' concept provides a feasible way to account for intra- and interindividual differences, there are a number of reasons that make it difficult to falsify toolbox models and to empirically test them against alternative models of cognition. In particular, testing toolbox models requires that each cognitive strategy included in the toolbox is thoroughly defined, that the number of strategies considered as candidates is set, and that there is a theory on how strategies are selected. While the first pre-requisite is usually met, researchers may not know a-priori which strategies actually guided behavior in a given situation and the application of strategies cannot be observed directly. Even if these challenges are met, a statistical model is required to compare and evaluate toolbox models as a whole. To address these aspects, we specify a theory of how people may choose among different strategies and we show how Bayesian concepts can be used to decide on the number of tools to consider to best describe choice data from single individuals and groups. Based on parameter recovery simulations and empirical choice data we further show how Bayesian techniques can be fruitfully applied to test and compare toolboxes of different sizes. The approach is further extended by testing cognitive toolboxes against alternative theories of cognition. Bayesian techniques provide a feasible method in the case in hand because they provide a common comparison metric that implicitly trades-off model complexity against the ability to explain observed data and thus allowing the testing of cognitive toolbox models as a whole.

JDM heuristics

The descriptively rational decision maker

John Galsworthy Building Room JG2009

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The rational reasoner and decision maker is often portrayed as one whose performance conforms to normative standards, an idea that falls under the more general heading of 'normativism' (Elqayam & Evans, in press). When people stray from normative standards, normativism considers them irrational. However, normativism is problematic. Norms are only useful when performance can be compared against an indisputable normative standard. But in reasoning and JDM, such 'single-norm' paradigms have become increasingly rare. To arbitrate between alternative norms, theorists sometimes draw on empirical data, a strategy that invites the problematic inference from 'is' to 'ought'. Moreover, normativism generates several research biases in the study of human thinking. With prior rules bias, researchers assume that normative systems are built-in, thus concentrating on untutored reasoners. Interpretation bias is the tendency of researchers to analyse and report findings in terms of their normative correlates. A special case of this bias is the 'ought-is fallacy' in dual processing approaches, where researchers assume that System 2 involvement ('is') can be diagnosed from normative responding ('ought'). Lastly, clear norms bias leads researchers to focus on research questions that seem to have clear-cut normative standards. The rational agent is one who achieves her goals instrumentally, whether or not this conforms with normative standards. Formal systems such as logic or probability theory have a role to play, but as computational-level descriptive theories rather than as normative systems. Normativism has played out its role in the psychology of human thinking; the focus now needs to be on descriptivism.

JDM heuristics

The distance heuristic as an alternative to the multiple-tools approach for probabilistic inferences

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In probabilistic inferences, asking which of two objects has the larger criterion value (e.g., which of two cities is larger), participants may recognize both objects, only one, or neither object. The classical toolbox approach assumes that for each of these cases, different strategies exist. If only one object is recognized, participants may simply choose the recognized object (recognition heuristic); if both are recognized, participants may utilize the fluency of recognition (fluency heuristic), the most valid knowledge cue (take-the-best heuristic), or guess; and if neither one is recognized, participants simply guess. As an alternative to this multi-strategy approach, we advocate the distance heuristic which is a general purpose strategy that simply exploits the difference in evidence between the two objects. We assume that based on their available knowledge participants first construct a subjective linear order of all involved objects, irrespective of the objects' recognition status. Participants then simply consult this rank order to answer the paired comparisons, again irrespective of the recognition status of the involved objects. In other words, participants' inferences are based on the distance in subjective ranks only. This approach allows straightforward predictions for choices and decision times. We tested these predictions in reanalyses of existing data and in a new experiment. The results uniformly show that linear-order information largely determines participants' choices and decision times, thus offering a simpler and more plausible account than the toolbox assumption with its multiple specific strategies.

JDM heuristics

The effort heuristic: A source of bias in job choice

John Galsworthy Building Room JG2009

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The 'Effort Heuristic' can be summed up by the idea that effort is indicative of value (Kruger, Wirtz, Van Boven & Altermatt, 2004). This paper tests whether the effort heuristic induces violation of the normative theory of job choice, Wage Compensation Theory (WCT). WCT predicts that, all else being equal, a worker will always be willing to accept lower wages for a preferred job. The effort heuristic predicts that a worker may set their reservation wage at a level that implies choice of a less preferred job, if that job is less effortful than a preferred alternative. In five studies I demonstrate that the effort heuristic leads to a violation of utility maximisation. This result has implications for labour markets and wellbeing, particularly for workers whose job choice is effected through wage setting, for example independent contractors and workers engaging in wage negotiations. It also implies that a leading method of valuation for public policy underestimates the value of human life.

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JDM heuristics

Bayesian reasoning by experience

John Galsworthy Building Room JG2009

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A key requisite for solving Bayesian tasks is the construction of an adequate representation of the relation between a reference set and its subsets. Past research has established that individuals perform poorly on these tasks, especially when the information is presented in the form of probabilities. Attempts to improve performance have been relatively successful although a large majority of individuals still remain unable to find the correct solution. We report two experiments where we examined whether providing individuals with an opportunity to interact with an external representation of the problem data would help improve performance. Individuals were asked to solve three Bayesian probability problems. All participants were presented with a standard paper-and-pencil questionnaire. Half of them, however, were also given playing cards representing individual elements of the problem reference set as a potential aid for solving the task at hand. Results revealed that the provision of cards had a radical effect on performance, with both single event probabilities and natural frequencies, producing a high majority of Bayesian answers. This suggests that commonly observed suboptimal levels of performance might originate from the impoverished environments provided to solve these tasks rather than from cognitive limitations. Future research will need to establish the underlying processes and limiting conditions that mediate the impact of external representations on Bayesian performance.

JDM and health I

Assessing different measures of risk taking propensity in a population with high HIV prevalence

John Galsworthy Building Room JG2010

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The literature contains various measures to gauge a person's risk taking propensity. This paper compares four risk-taking propensity measures: two survey-based measures and two task-based measures. The first survey-based measure (Dohmen et al., 2005) uses one simple question to ask individuals to classify themselves as fully prepared to take risks or as always trying to avoid taking risks. The second survey-based measure is the Dospert (Weber, Blais, & Betz, 2002), which measures the individuals' perceptions of the riskiness, the benefits, and the expected likelihood of engaging in different hypothetical risky behaviors across different domains. The first task-based measure uses real monetary incentives and asks respondents to choose between an option whose payoff has greater variance and another option with lower variance (Holt & Laury, 2002). The second task-based measure is the Balloon Analog Risk Task (Lejuez et al., 2002), whereby the participant pumps up a computer-simulated balloon, and is paid for each pump unless the balloon bursts. These survey and task-based measures of risk taking propensity were elicited from 350 clients attending HIV testing healthcare facilities around Witbank, South Africa. The measures were then compared with each other and with self-reported health risk behaviors (including alcohol use, smoking, seat-belt use, and risky sexual behavior). The Dohmen one item self-classification of risk-taking propensity was the best overall predictor of real and hypothetical risky behaviors. The Holt and Laury risk measure predicted hypothetical risk behavior in the domain of gambling and health. BART was unrelated to any of the risky behaviors, except problem drinking. Dospert questions predicted actual health behavior correctly by domain.

JDM and health I

How to achieve procedural satisfaction and accuracy in surrogate decision making

John Galsworthy Building Room JG2010

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Surrogate decisions occur when a patient can no longer express his or her treatment preferences. Who are the surrogates? In the absence of a living will or patient-designated surrogate, several countries (e.g., Switzerland) and many U.S. states appoint a default surrogate using a next-of-kin hierarchy that starts with the patient's spouse and progresses to his or her adult children, parents, and adult siblings. This legal framework of individual surrogates neglects that people may want to share the responsibility of making painful, high-stakes decision for themselves and their loved ones. In two studies involving 433 and 253 individuals, we investigated (a) how people would prefer surrogate decisions to be made for themselves (if they were to become incapacitated) and how they would prefer to make a surrogate decision for a loved one (if they were to become a surrogate) and (b) how accurate different ways of making a surrogate decision are in predicting the patient's preferences. We find that, when people are asked about their preferences in surrogate decision making, having family members decide as a group comes second only to the option of relying on a patient-designated surrogate (of which in practice there rarely is one). Moreover, sharing the burden of making what is often an emotionally distressing decision does not appear to compromise the family's ability to infer the patient's treatment preferences accurately, in fact, accuracy may be even slightly improved by aggregation. We discuss the implications of these findings for the design of social institutions such as laws regulating surrogate decision making.

JDM and health I

Methods for studying the cognitive causes of diagnostic error in medicine: A systematic review

John Galsworthy Building Room JG2010

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Cognitive factors are the most prevalent cause of diagnostic error. The aim of this review is to collate and assess the methods employed for their study. Five electronic databases were searched and reference lists consulted. Seventy eight studies were eligible. They were categorised into: 1) Studies that simulated diagnostic situations ('simulation-based studies': n=43), subdivided into process-tracing and outcome-based; 2) Studies of naturally occurring diagnostic situations ('real-patient studies': n=35) subdivided into record reviews and studies of recalled cases. Studies were assessed along four dimensions: 1.Theoretical framework: This was present in 88% of simulation-based and 17% of real-patient studies, the most popular being 'heuristics and biases'. 2.Potential for bias: In 30% of simulation-based studies, there was potential for reactivity. In 40%, inferences about the diagnostic process were drawn from post-hoc data. In 96% of record reviews, there was some subjectivity in case review (e.g. low or no reported inter-rater agreement about error causes). All interview studies suffered from potential recall and justification biases with little attempt to reduce them. 3.Generalisability: Simulation-based studies used a median of three cases, usually written vignettes. Real-patient studies investigated a larger number of errors (median of 64) but with substantial variation between studies. 4.Mixed methods: few studies (12%) attempted to triangulate findings using multiple methods. Our review identified several shortcomings in all methodological approaches used to study the cognitive causes of diagnostic error. Multiple methods could go some way to improving the validity of findings but are rarely employed.

JDM and health I

Obesity in men and in women: Not the same story? Evidence from decision-making studies

John Galsworthy Building Room JG2010

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Obesity has been associated with impulsivity and poor inhibitory control, but behavioral evidence for such phenomena has only been reported regarding obese women, and accounts of the cognitive properties of obesity in men are scarce. In light of recent research suggesting that obesity is a form of addiction, we propose that similarly to substance-abuse, obesity is associated with characteristics of impaired decision making in men, though not in women. We hypothesized that obese men would display a tendency for excessive risk taking motivated by the pursuit of gains despite potential losses. This hypothesis was confirmed in two independent samples, while past results of impulsivity in obese women (but not men) were replicated. Our findings shed light on the cognitive characteristics of obesity in men, and suggest that the relation of obesity to cognitive performance differs between genders. They also highlight the contribution of decision research to our understanding of real-world behavior and health.

JDM and health I

The genetic basis of risk taking: DAT1 polymorphism predicts risk taking in the Balloon Analogue Risk Task (BART)

John Galsworthy Building Room JG2010

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People differ considerably in their risk taking behavior. Twin-studies investigating the heritability of risk attitudes suggest that a significant portion of individual differences in risk-taking is due to genetics. Some authors have suggested that genetic variability in dopaminergic neuromodulatory systems may be related to individual differences in risky choice (Tom, Fox, Trepel, & Poldrack, 2007). Our aim was to assess the link between the candidate gene DAT1, a dopamine transporter gene thought to modulate striatal dopamine levels, and risk-taking in a widely used and clinically relevant task, the Balloon Analogue Risk Task (BART; Lejuez, Read, Kahler, Richards, Ramsey, Stuart, Strong, & Brown, 2002). We obtained genotype information concerning DAT1 for 330 participants who also completed the BART. We fit a computational model of sequential choice that includes both gain sensitivity (γ) and error (β) parameters to account for risk behavior in the BART (van Ravenzwaaij, Dutilh, & Wagenmakers, 2011). Our behavioral and modeling results showed significant differences between two groups that varied in the number of tandem repeats in the DAT1 gene (s and l carriers). Namely, the gain sensitivity parameter was significantly higher for carriers of the longer version of the gene compared to carriers of the shorter version, which indicates higher sensitivity to reward, and thus increased tendency to pump up balloons in the BART for the l relative to s carriers.

Our findings suggest that differences in DAT1, a gene linked to dopamine availability in the striatum, are related to risk taking in the BART. Our results thus support the idea that a candidate-gene approach can be helpful in uncovering the genetic basis of risk taking.

JDM and health I

Why do patient narratives bias hypothetical dialysis decision making: Is it a characteristic of the reader?

John Galsworthy Building Room JG2010

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Background: Previously we conducted two experimental studies and found participants were more likely to choose dialysis modality described by a patient, rather than a doctor. This paper explores whether characteristics of the person reading the information, affects the decision. Aim: to examine whether characteristics of the decision maker influences a hypothetical dialysis treatment choice. Method: 1694 participants viewed information about two dialysis options (HD & CCPD) and completed an online questionnaire. Treatment information was varied by order of presenter (Patient 1st, Doctor 1st), who presented (Doctor, patient), sex of patient and Doctor (male, female). The information was controlled to ensure comparable content and comprehensibility. Measures included: treatment choice and time spent viewing each page. The need for affect and the need for cognition, were completed in Study 1 (n=578). Findings: 20% of participants were considered outliers. In Study 1, the need for affect [$F < 1$] and need for cognition [$F = 1.58, p = .21$] did not influence participant's choices. Length of time spent reading narratives was not influenced by who presented the narrative [$F = 1.51, p = .22$], the order in which it was presented [$F < 1$] and did not influence dialysis choice [$F < 1$]. Discussion: Individual characteristics of the participants or how they attended to the information did not affect treatment choice. This is contrary to previous research has shown that narratives influence individual's affective mechanisms for processing information. The large number of outliers suggests participants did not fully engage with the task. Future research should concentrate on exploring factors which might explain the influence of narrative on decision making.

Emotion and judgement

Emotion regulation in negotiation

John Galsworthy Building Room JG2007

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We present an overview of our research on emotion regulation in negotiation. In part I we demonstrate that individuals typically up-regulate their anger prior to negotiation. Small interventions, however, can significantly shift perceptions of the negotiation and emotion regulation strategies. In part II we differentiate between 'Cognitive Reappraisal', construing a potentially emotion eliciting situation in a way that modifies its emotional impact, and 'Expressive Suppression', inhibiting emotion expressive behavior. We find that regulating anger by expressive suppression leads to more deadlocks, inferior joint outcomes, and more hostile evaluations of counterparts. These results challenge advice of popular negotiation text books to 'keep a poker face'.

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Emotion and judgement

Judgments of the emotional intensity of musical experiences

John Galsworthy Building Room JG2007

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Usually, listening to music evokes emotions whose quality and intensity vary over time. After listening, we are often able to make an immediate retrospective judgment about the overall emotional intensity of the music experience. Which information do we use to arrive at such judgments? In an experimental study, we investigated if the global evaluation depends on (1) the onset emotional intensity of the music experience, (2) its end, (3) its peak, (4) its average, (5) the sum of all moments, or (6) the peak-end combination. Fifty-four participants listened to 11 pieces of varying length and of different genres. Using an electronic slider they continuously rated the intensity of their experienced emotions. After a break, they retrospectively evaluated the overall emotional intensity of each song (global evaluation). Regression analysis yielded that average and peak-end are the most powerful predictors for the global evaluation. In addition, peak-end was the value closest to the global judgment. Thus, listeners may use the average of the whole experience or the combination of its most intensive moment and its end to render a global judgment, which would be a very simple and parsimonious heuristic. The results may be relevant, e.g., for musicians when composing their pieces or arranging sets of pieces on their albums or during their concerts.

Emotion and judgement

Heating up versus cooling down in children's and adolescents risky choice

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Current theorizing about the causes underlying heightened adolescent real-world risk taking focuses on the hypothesized imbalance between earlier-developing brain areas implicated in affective processing versus later-developing areas implicated in cognitive control. To add to the relatively small body of empirical evidence on which these theories are based, we investigated 'heating-up' versus 'cooling-down' in risky choice in children and adolescents. Children (N=60, M=10.2 years) and adolescents (N=79, M=14.9 years) were assigned to complete the hot and cold versions of the Columbia Card Task (CCT), either in a 'cool-down' (hot followed by cold) or 'heat-up' condition (cold followed by hot). Task performance was incentive-compatible and feedback unrigged. Consistent with neurodevelopmental theory, we found asymmetric effects with the hot CCT having stronger effects on the cold CCT in terms of risk taking, responses to losses, and indicators of risky choice quality (such as financial outcomes and information use), compared with the inverse (i.e., 'heating up' was stronger than 'cooling down'). Age differences in choices were consistent with known neurodevelopmental differences in cognitive-control areas, but only partially consistent with presumed differences in affective processing. The results further suggest that particularly adolescents' risky choice in affect-charged conditions may benefit from previously making risky decisions under predominantly deliberative conditions.

Emotion and judgement

Measuring experienced utility of students: Comparing the day reconstruction method with a real time method to assess emotional experiences

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We report a study examining the day reconstruction method as introduced by Kahneman et al. (2004) in a sample of students from a German university. A version of the original day reconstruction method was compared with an analogous real time method, where participants were instructed to record their experienced feelings immediately following an episode over the entire course of the day. Data were collected for four days, yielding a total of 4927 assessed episodes. Overall, for the majority of episodes the most intense emotion reported was a positive emotion (e.g., happy). Nevertheless, participants in the real-time condition reported significantly more negative episodes than participants in the reconstruction condition. In both conditions, activities experienced as most positive were sex, sports, and social interactions; the most negative activities were learning, working, and attending lectures. No substantial differences among conditions were found concerning the order of positive and negative activities. Over the course of a day, episodes tend to become more positive and less negative. Time of day and condition show a significant interaction, indicating that leisure periods are experienced as less pleasurable than they are reconstructed. Integrated measures of experienced emotions across a day's episodes significantly predict overall ratings of satisfaction of the day, but are unrelated to overall ratings of life satisfaction. In addition to some insights into the emotional experiences of German students, this study provides evidence that the day reconstruction method yields results very similar to a real time assessment method, though there might be a tendency towards positivity when reconstructing episodes compared to experiencing them.

Emotion and judgement

The inverse relation between benefits and losses in risk judgment and acceptance: Affect heuristic, trade-off avoidance or ignorance?

John Galsworthy Building Room JG2007

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In reality, risk and benefit are positively correlated. In contrast, Alkahami and Slovic (1994) found that they are negatively correlated in people's minds, i.e. for rejected hazards, people judged benefits as low and losses as high. This was generalized into the affect heuristic, which states that affect comes prior to and directs judgments of risks and benefits. Thus, people are not aware of actual relations between losses and benefits. Alternatively, under some circumstances people might be aware of positive relation between losses and benefits but are not willing to make trade-offs. Thus, they simplify decisions at the cost of accuracy, e.g., experts highly involved in a hazard might display both increased awareness of losses and benefits and increased affect. This raises a question which of those two factors is relatively stronger in risk perception and acceptance. To investigate this issue laymen and experts were surveyed about present and future losses and benefits of risky activities associated with different levels of affect. They also evaluated risk and declared acceptance for investments (Experiment 1), health risk (Experiment 2) and stem cells research (Experiment 3). In all experiments, laymen were students. In Experiments 1 and 2, experts were professionals working, respectively, for banks and for Warsaw Medical School. In Experiment 3, experts were either professionals involved in stem cells research or Catholic priests graduated in humanities. No inverse relation was found for investments. For other hazards, the relation was observed among laymen but not among physicians and biologists. The inverse relation for current, but not for future, gains and losses was observed among priests.

Emotion and judgement**Quasi-naturalistic risky scenarios and the influence of mood induction****John Galsworthy Building Room JG2007****Arlette Baer Deucher**University of Fribourg
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In quasi-naturalistic risky scenarios subjects are often interested in Risk Defusing Operators (RDOs). Huber (2007) proposes RDOs as measures of risk control which he defines as actions anticipated by the decision maker to be performed in addition to an available alternative in order to (at least) decrease the risk involved. The experimental research of mood induction assumes that morals can be activated on the basis of the presentation of particular events, for example, pleasant or unpleasant events. This was found to be independent of whether the events are real or just imaginary. In our research we decided to induce positive and negative mood with stories. The main questions in our study are: Do we decide differently in dependence of different mood states? Does the search for RDOs depend on emotional states? We expect that after negative mood induction subjects are more risk averse, ask more questions, as well as more probability questions and need more time until they make a decision. After positive mood induction, subjects are more risk seeking, search more for RDOs. We use three quasi-naturalistic risky scenarios and the type of mood induction (positive /negative) as independent variables. The information search behavior in the scenarios was operationalized with the method of Active Information Search. Our dependent variables are the risky decision, the search for RDOs, the number of questions, the probability of the negative event and the required time till the decision. The previous results show that with our stories we can induce positive or negative mood and that the induction of the mood influences the decision in different ways.

Social JDM II

A sip or a guzzle? Dividing water in ultimatum and dictator game scenarios

John Galsworthy Building Room JG2008

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Ultimatum and dictator games have become influential models in experimental economics and psychology. However, due to their economic origin (Gauthier et al., 1983), they have almost exclusively been played with money. From a psychological perspective, it seems near at hand to replace this secondary reinforcer with a primary reinforcer and see if players still act the same. We had the ultimatum game (UG) and dictator game (DG) played with dividing water after experimental induction of thirst. In Study 1, $N = 60$ proposers played the UG with water after a 25 training session on a bicycle ergometer, inspired by Van Boven & Loewenstein's (2003) work on the cold-to-hot empathy gap. Subsequently, they had to make an offer how to share either 150 ml or 200 ml of water with an anonymous person with the same amount of workout. They were informed that after the game, they would be kept in the lab for another 30min to fill out some questionnaires, so there were no chance to have a beverage except for the gaming water. In Study 2, $n_1 = 43$ participants actually biking had to make a DG offer, compared to $n_2 = 43$ just imagining the workout. In Study 3, we offered small amounts of water to responders in an UG scenario in order to reveal the minimal acceptable offers (MAOs) in this setting. The effectiveness of thirst induction was assessed in control studies. Overall, proposers were extremely fair in their offers, with some even showing hyperfairness. Being asked for their motives, most referred to fairness norms guiding their behavior. People actually biking were even more fair than those just imagining to do so. Results will be discussed regarding their comparability to the money results (e. g., 'windfall' property) and their implications for models of human nature.

Social JDM II

Cooperation without awareness and decisions from experience in minimal social situations

John Galsworthy Building Room JG2008

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We used experimental and Monte Carlo methods to test theoretical predictions about adaptive learning of cooperative responses without awareness in a special class of games, called minimal social situations, in which the payoffs to players depend not on their own actions but exclusively on the actions of their co-players. A simple win-stay, lose-shift strategy of decisions from experience predicts adaptive learning of cooperation in dyadic minimal social situations, and early research, without adequate experimental controls or incentive payments, generally confirmed this. The theory has been extended to multi-player groups, where it makes the same prediction in group sizes of 4, 8, and so on (powers of 2), and in a small proportion of other even-sized groups, but predicts no adaptive learning at all in odd-sized groups. In Experiment 1, learning occurred slowly over 200 rounds in a dyadic minimal social situation but not in 3-player, 4-player, or 6-player groups, in spite of substantial financial incentives. In Experiments 2-4, learning occurred rarely in multiplayer groups, even when players were informed that they were interacting strategically and were allowed to communicate with one another but were not aware of the game's payoff structure. Monte Carlo simulation suggested that players approach minimal social situations using a noisy version of the win-stay, lose-shift decision rule, deviating from the deterministic rule less frequently after rewarding than unrewarding rounds. Players appear to start with about 20% misimplementation noise after rewarding rounds and 50% after unrewarding rounds, and noise decays exponentially as decisions become more deterministic. This explains not only our own results but also those of previous investigators.

Social JDM II

Social communication and discrimination: A video experiment

John Galsworthy Building Room JG2008

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It is well established that communication facilitates cooperation and generosity. Do people become less selfish following communication because they care more about others, or for strategic reasons? We design an experiment which eliminates all strategic effects by using a three-person dictator game with one-way communication. The same recipient pairs play with different dictators in three experimental conditions, in which the dictators either do not observe the recipients, watch a silent video message from the recipients, or watch identical messages that include the audio channel of one of the recipients. This design controls for strategic effects, as the recipients have no strategic power while the dictator is never observed. In line with previous research, we find that mere visual exposure does not increase mean dictator generosity, whereas a recipient who is heard receives significantly higher allocations. However, our design allows us to identify existing effects in the Video condition not manifested in the mean allocations. We find that the allocations within pairs are significantly correlated with social ratings of the recipients made by the dictators, thus providing evidence that dictators do update their preferences based on the (silent) video messages of individual recipients. Ratings of the silent videos by judges who are unaware of the game significantly predict the allocations made to recipients, thus establishing the causal direction from impression to allocation. Conversely, the content of the messages is not correlated with the allocations.

We conclude that mere exposure affects giving behaviour due to altered social preferences. The effects are systematic but subtle, and crucially depend on the individual characteristics of the communicators.

Social JDM II

Social preferences and risk taking in interpersonal and individual choice contexts

John Galsworthy Building Room JG2008**Johannes Leder**University of Erfurt
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It is an everyday occurrence that people make decisions concerning uncertain prospects that involve others. In this case risk perception and social preferences are likely to influence choice. This leads to the question: Do people's risk perceptions differ in interpersonal choice contexts compared to individual choice context and is the change related to the incentive structure? An experiment was conducted based on a mixed design. Within subjects the choice context (individual vs. interpersonal), and distributional equality (equal vs. better vs. worst) as well as variance of payoffs (high vs. low) and between subjects the frame of the certain prospect (price of lottery vs. sure gain) was manipulated. Furthermore, personality variables were assessed using behavioral and self report measures. Analysis within subjects found that the mean certainty equivalent in the interpersonal choice context was higher than in the individual context irrespective of the distribution of payoffs. Analysis between subjects found that when the certain outcome was framed as the price of the lottery the certainty equivalent was lower. The personality variables assessed could not explain the differences. The results show that people are willing to sacrifice some of their personal payoffs in order to increase the possible earnings of another person. This supports the notion that people care for other people's welfare which was also found in other experiments. Furthermore this effect was found without reciprocity between the decider and the recipient, and even when the decider profits less from the uncertain prospect than the recipient.

Social JDM II

Split or steal? Cooperative behavior when the stakes are large

John Galsworthy Building Room JG2008

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We examine cooperative behavior when large sums of money are at stake, using data from the TV game show "Golden Balls". At the end of each episode, contestants play a one-shot Prisoner's Dilemma for large and widely ranging stakes averaging over £13.000. Cooperation is surprisingly high for amounts that would normally be considered consequential but look tiny in their current context, what we call a "big peanuts" phenomenon. Utilizing the prior interaction among contestants, we find evidence that people have reciprocal preferences. Surprisingly, there is little support for conditional cooperation in our sample. That is, players do not seem to be more likely to cooperate if their opponent might be expected to cooperate. Further, we replicate earlier findings that males are less cooperative than females, but this gender effect reverses for older contestants since men become increasingly cooperative as their age increases.

Social JDM II**Two sides of one coin: On the interplay of person and situation in shaping social dilemma decision making****John Galsworthy Building Room JG2008****Benjamin Hilbig**

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Concerning social dilemma decision making and the determinants of human cooperation, two growing and, at the same time, quite separate lines of research exist: On the one hand, researchers are investigating the situational, contextual, or institutional factors which influence cooperation. On the other hand, there is growing interest in the dispositional (i.e. personality) factors underlying decision making in social dilemmas and strategic interactions. However, only few systematic, theory-driven investigations exist on the interplay of the two, that is, how person and situation mutually shape behavior. In a series of studies in ultimatum bargaining, prisoner's dilemmas, and public goods games, we show that the basic personality factor honesty-humility (as conceptualized in the HEXACO model of personality) is highly predictive of the degree to which players cooperate. More importantly yet, it also accounts for players' tendency to adapt their behavior to situational and contextual determinants, such as experimentally manipulated payoffs or the power of other players to retaliate. The findings corroborate the importance of a theoretical view which integrates dispositional and situational determinants of cooperation.

Confidence and optimism**A systematic effect of access to information on impression formation****John Galsworthy Building Room JG2009****Gael Le Mens**Universitat Pompeu Fabra
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Why do people develop more positive opinions about those close to them? For example, members of an ethnic group have more positive opinions of their own group. Explanations for this tendency have usually invoked motivated reasoning, reliance on heuristics and the effect of unconscious processes such as mere exposure. Here we suggest an alternative mechanism that focuses on access to information rather than on information processing biases. Our explanation relies on the observation that you can often obtain information about those close to you even if you do not personally interact with them. But you are less likely to have access to such 'incidental' information about distant others. We argue that access to such 'incidental' information can have a systematic effect on impressions, by attenuating the negativity bias generated by adaptive sampling. We tested this prediction in an experiment where participants made a sequence of choices between two uncertain alternatives, S and I, with unknown probabilities of success. Participants had to actively sample the first alternative, S, to observe its payoff. For the second alternative, I, incidental information was available: Even when they did not select it, participants observed one realization of the payoff of this alternative. At the end of 20 periods, participants were more likely to believe that I was the superior alternative than to believe it was the inferior alternative despite the fact that both S and I had equal success probabilities. Our experiment suggests that access to incidental information, not contingent on selection, can make an uncertain alternative more desirable, a pattern consistent with the finding that information about foregone payoffs increases risk-taking.

Confidence and optimism**Confidence-enhanced performance:
Does it exist and if so how does it work?****John Galsworthy Building Room JG2009****Fergus Bolger**
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We empirically test, and investigate the psychological mechanism behind, the theory of Confidence Enhanced Performance (Compte and Postlewaite, 2004). This theory suggests that if confidence enhances performance, then people will benefit from having the commonly observed tendency of being overconfident. We propose that confidence may enhance performance by increasing motivation, improving mood, or boosting arousal. We test this hypothesis, and investigate these mechanisms, using three tasks which require different cognitive abilities. Preliminary results suggest some support for the theory but there are strong task differences (e.g. confidence seems to enhance performance significantly for our syllogism task, but not for general knowledge, and a reverse effect seems to be true for our picture recall task). Mood seems so far to be the most plausible of the three mechanisms by which any enhancement of confidence by performance operates. Theoretical and practical implications of our findings are discussed.

Confidence and optimism

Assessing the chances of success: Overconfident or just confused?

John Galsworthy Building Room JG2009

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Assessing the probability of success is important to decisions to enter contests such as market-entry games. And yet, studies have not directly investigated the accuracy of agents' assessments of these probabilities. We first define a normative model of success probabilities that takes account of agents' relative ability levels in situations where there are k winners out of n possible contestants (Mukherjee & Hogarth, 2010). We then report four experiments using a scenario about the chances of being a winner in a video-game contest. In Experiment 1, we elicit judgments of probabilities. Experiment 2 does the same except that we provide proper economic incentives and a condition where participants respond on behalf of a third party. We find considerable variability of responses (or confusion) in both experiments. Experiment 3 explores choices within the same paradigm. Most participants entered most of the contests and showed little awareness of the correct probabilities. Experiment 4 explores effects of providing aids to calculate probabilities, specifically, access to expert advice and two simulation tools. These all made a huge difference. Probability estimates were quite accurate and decisions varied appropriately with the economic consequences. We discuss implications of our experiments by focusing on how to interpret contest entry behavior as well as the use of decision aids to help people make better decisions.

Confidence and optimism**Confidence and strength of preference
in decisions under risk****John Galsworthy Building Room JG2009****Daniel Navarro-Martinez**

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We propose the constructs of confidence in preference and strength of preference and explore the extent to which they can provide a more comprehensive account of decision behaviour and reveal patterns not captured by the more typical binary choices. We show that these constructs behave coherently in response to the structure of decision problems, they reveal a behavioural complexity behind decision making rarely taken into account, and they demonstrate that decision patterns go well beyond the comparison of expected utilities. Similarity between alternatives seems to be an important driving force behind some of the constructs, which also gets reflected in the binary choices.

Confidence and optimism**The act of decision making as a source of entrepreneurs' unwarranted confidence****John Galsworthy Building Room JG2009****Peter Boyle**Central Washington University
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One way entrepreneurs develop anomalously high levels of confidence is described. A circular process begins with elevated confidence, which then drives greater distortion of decision-relevant information toward support of the tentatively preferred option, that yields even more confidence in that option, driving more distortion, and so on, to a highly confident final decision. In a study of an investment decision, entrepreneurs made a decision regarding an entrepreneurial opportunity based on five separate attributes of the venture, for which they provided evaluations of how attractive each attribute made the venture seem. Attributes were written to be neutral, favoring neither the Go nor the No Go options. After all five attributes had been rated, participants made a final decision (go/no go) and reported their confidence (50 to 100%) in that decision. Entrepreneurs distorted substantially more (1.85) than MBAs (1.59) and undergraduates (0.86), and their final confidence was substantially higher (89.4, 83.1 and 78.2 percent, respectively). Final confidence mirrored initial confidence at the first attribute (in order, 78.1, 68.9 and 64.5 percent). The result of this self-reinforcing escalation of confidence was (a) the selected option appears to have more support than is justified (because people are unaware that they have distorted the relevant information), and (b) the entrepreneur has more confidence in the final decision than is warranted.

Confidence and optimism**The unrealism in unrealistic optimism research? Testing the statistical artifact hypothesis****John Galsworthy Building Room JG2009****Adam Harris**University College London
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A robust finding in social psychology is that people judge negative events as less likely to happen to themselves than to the average person, a behavior interpreted as showing that people are 'unrealistically optimistic' in their judgments of risk concerning future life events (e.g., Weinstein, 1980). We have demonstrated that unbiased responses can result in data patterns commonly interpreted as indicative of optimism for purely statistical reasons (Harris & Hahn, 2011). Specifically, we demonstrated how extant data from unrealistic optimism studies investigating people's comparative risk judgments are plagued by the statistical consequences of sampling constraints and the response scales used, in combination with the comparative rarity of truly negative events. Having demonstrated that three statistical mechanisms could contribute to the results of unrealistic optimism studies, here we present initial empirical evidence suggesting that they do.

JDM and health II**Trust and worry and the public decision to vaccinate against the swine flu and other preventive behavior****John Galsworthy Building Room JG2010****Danielle Timmermans**

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During the Influenza A (H1N1) epidemic people were concerned about the health risks of the adjuvant in the vaccine and doubted whether the vaccine had been properly tested. Public trust in the safety of vaccination may affect vaccination behavior. The present study investigated the role of trust in the government concerning the decision to vaccinate against the swine flu. Representative samples of the Dutch general public and parents were approached in December 2009 via an internet panel to fill in an online questionnaire. Participants were 314 members of the Dutch general public and 329 mothers of young children. Main outcome measures were vaccination behavior, other preventive behavior, perceived risk of disease, acceptability and perceived safety of vaccination, and trust in the government. Trust in the government in addition to perceived risk of disease and perceived safety of vaccination was an important predictor of participants' decision to vaccinate or not against the swine flu. Trust in the government particularly affected the mothers' decision for their children to be vaccinated. About 70% of the people from the risk groups reported having had a vaccination, which is comparable to the 76% of the assigned risk groups in the Dutch population overall. Among the general public, older participants more often reported having been vaccinated, presumably because older people belong more often to a risk group. Participants with a higher perceived risk of disease and a higher educational level more often reported having taken preventive actions other than vaccination. Our study showed the importance of trust in authorities for the decision to vaccinate, in particular if these health risks involve children.

JDM and health II**Assessing small non-zero perceptions of chance: The case of H1N1 (swine) flu risks.****John Galsworthy Building Room JG2010****Wandi Bruine De Bruin**Carnegie Mellon University
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When examining perceptions of risk, it may be especially important to distinguish respondents who perceive themselves as having a 0% risk from those who see themselves as having any risk at all. Indeed, individuals who judge themselves to be at 0% risk may feel invulnerable to the risk under consideration, reflecting misunderstandings of risk and increased need for risk communication. However, judgments of 0% risk may be given by individuals who feel invulnerable and by individuals who do not feel invulnerable but are rounding from small non-zero probabilities. We examined the effect of allowing participants to give more precise responses in the 0-1% range on the validity of reported probability judgments. Participants assessed probabilities for getting H1N1 influenza and dying from it conditional on infection, using a 0-100% visual linear scale. Those responding in the 0-1% range received a follow-up question with more options in that range. This simple two-step procedure reduced the use of 0% and increased the resolution of responses in the 0-1% range. Moreover, the increased precision of the revised probability responses improved validity, seen in regressions predicting concern about the flu and self-reported flu prevention behaviors including hand washing. Hence, our two-step procedure allows for more precise and more valid measurement of perceived invulnerability.

JDM and health II**Concreteness and simplicity explain the effect of numerical and graphical risk formats on perceived likelihood and choice****John Galsworthy Building Room JG2010****Danielle Timmermans**

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Quantitative risk information plays an important role in daily decision making about health and care. It is, however, information that is difficult to comprehend. In practice, various numerical and graphical formats are being used for risk communication. Past research and theoretical views provide different explanations about which risk formats may yield more meaningful perceptions of likelihood for choice and why. The current study aims to provide conceptual understanding of the effects of different numerical and graphical risk formats on risk perception and choice preference. The results of our experiment show that the perception of numerical risk information depends both on the degree to which the format refers to concrete and imaginable numbers of events and on the simplicity with which the format conveys a numerical relative risk ratio. Simple numerical formats that use small numbers ('1 in X') yield more impressive perceptions of likelihood and have an according effect on choice preference, suggesting a stronger role for intuitive and affective processing of information than less concrete or more complex formats (percentages or 'X in 100'). The effect of graphical information formats in risk perception is limited, but it is slightly more pronounced among persons with low numerical aptitude and it may be stronger for more complex situations. When presenting risk information in practice, consideration is needed about which format is most concrete and which is the simplest given the purpose the information serves.

JDM and health II**Flu shots, mammograms, and the perception of probabilities****John Galsworthy Building Room JG2010****Katherine Carman**Tilburg University Department of Economics
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Whether or not an individual takes action to reduce risk is likely to be influenced by their perceptions of the risk they face. We study individuals' decisions to decline or accept preventive health care interventions such as flu shots and mammograms. In particular, we analyze the role of perceptions of risk and the effectiveness of the intervention, by eliciting individuals' subjective probabilities of sickness and survival, with and without the interventions. We use data from representative sample of over 5000 Dutch individuals. Respondents were asked about their use of preventive care, their perceptions of risk, and their risk factors for various diseases. For each respondent we use epidemiological models to calculate an objective measure of risk based on the individual's own risk factors. We then compare the epidemiological predictions to the subjective probabilities. While previous research has shown that individuals can judge valid probabilities, a unique contribution of this paper is our ability to investigate whether deviations from average risks in the population are driven by over-estimation of the magnitude of risk or by the fact that individuals possess private information that is typically unmeasured about their own risks. Respondents appear to be aware of some of the qualitative relationships between risk factors and probabilities. However, on average they have very poor perceptions of the absolute probability levels as reported in the epidemiological literature. Perceptions of risks and effectiveness significantly affect the subsequent take-up rate of flu shots, mammograms, pap smears and the use of aspirin.

JDM and health II

Fluency and efficacy: Biases in judgments of pharmaceutical effectiveness

John Galsworthy Building Room JG2010

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Many psychological factors are known to influence medical decision making. Here, we investigated the roles of fluency, cue availability, and individual differences (i.e., memory encoding) on judgments about therapeutic drug efficacy. We hypothesized that under certain conditions fluently processed drug names will bias judgments of drug efficacy. Specifically, we predicted that name fluency will serve as a judgment cue when few other cues are available (e.g., when selecting between similarly priced, unfamiliar medicines at a drug store). Results indicated that manipulation of cognitive fluency, such as changes in the ease of drug name pronunciation, influenced estimates of medicinal benefits: Easier to pronounce drugs were judged to be considerably more effective (Cohen's $d = .7$). Memory played a mediating role, a surprise recognition test for drug names reliably predicted differences in fluency bias ($R^2 = .05$), suggesting that differences in encoding and attention mediated the use of fluency as a judgment cue. People also judged that fluently named drugs were likely to cost about twice as much as disfluently named drugs (Cohen's $d = 1.1$). Differences in cost estimation were in turn mediated by individual differences in the use of fluency as a basis for judgment ($R^2 = .23$). Theoretically, results extend previous research on fluency, documenting a new 'judgment domain', i.e., fluency as efficacy. Results suggest that other 'judgment domains' (i.e., fluency as value) may be mediated by efficacy judgments. In turn, judged efficacy is mediated by differences in memory (e.g., encoding). Applications and other implications will be discussed (e.g., marketing; debiasing; placebo effects).

JDM and health II

The influence of narrative versus statistical information on perceiving vaccination risks

John Galsworthy Building Room JG2010**Frank Renkewitz**University of Erfurt
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Decision makers often obtain statistical and narrative information about potential risks, e.g. when searching for health-related information on the internet. Previous research has demonstrated a 'narrative bias', which means that narratives affect risk assessments, even when statistical information is available at the same time. The determinants of this bias are largely unknown. Theoretically, it is assumed that perceived risk is constituted by the subjective probability of an event and its expected severity. In the context of vaccination decisions, this research examined the effect of the relative frequency of narratives reporting vaccine-adverse events on perceived risk and its constituents when statistical information is presented concurrently. Exp. 1 showed that an increasing relative number of narratives reporting adverse events increased the perceived probability and severity of such events and, consequently, the experienced risk of vaccinations. Furthermore, the intention to vaccinate decreased with higher numbers of narratives. Exp. 2 revealed that incidence rates given in statistical and narrative information had effects of similar size on the perceived probability of adverse events. Perceived severity was only affected by the narrative information. Consequently, narrative information had a stronger impact on perceived risk than statistical information. Additionally, narrative information affected vaccination intentions more strongly than statistical information. Exp.3 replicated the effect of narrative information on probability and risk assessments using different measurement methods and found again that perceived risk was more strongly influenced by narrative than by statistical information.

Recent Methodological and Analytical Advances in Decision Research

John Galsworthy Building Room JG0002

10:30 - 12:30

Convener

Joseph Johnson

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Discussant

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For half a century, empirical studies in JDM were dominated by examining choice outcomes among student populations. For example, classic results such as the Allais paradox or preference reversals were revealed by comparing pairs of choices from psychology undergraduates.

This degree of detail was sufficient for informing theory development in the past, such as discriminating among utility functions. However, contemporary theories are increasingly more nuanced and more process-oriented, and therefore more difficult to diagnose based on outcomes alone. Furthermore, the generalizability of results beyond undergraduate populations seems dubious (cf. NDM and similar critiques).

The proposed symposium will provide a survey of the state-of-the-art in methodological and analytic techniques that keep pace with this increased theoretical sophistication and departure from the exclusive use of undergraduate populations. Specifically, the symposium will include a balanced and coherent set of talks that introduce: new paradigms including interactive eye-tracking (Franco-Watkins), and measures of response dynamics (Koop); new analytic techniques for response times (Fific) and multiple dependent variables simultaneously (Jekel); means of access to entirely new populations with untapped potential (Paolacci). These advances are crucial for the development of JDM research and can be applied to essentially any domain.

Interactive eye-tracking for decision research: Decision moving-window methodology

John Galsworthy Building Room JG0002

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It has become increasingly more important for researchers to better capture the complexities of making a decision beyond outcome measures. Currently, a disparity exists between the process-level models decision researchers use to describe and predict decision behavior, and the methods implemented and metrics collected to test these models. To better measure cognitive processes such as attention and working memory during decision making, we introduce a new decision moving-window paradigm that combines the advantages of work in decision research (mouse-tracing with contingent information display) and cognitive psychology (eye-tracking paradigms from reading and scene perception) by presenting information contingent on eye-fixations. We demonstrate the effectiveness of this methodology by presenting the first application to risky decision making, and show how it compares to standard eye-tracking methods (without occlusion of information). We outline the practical, theoretical, and analytic advantages of this method and how it can advance both decision making research as well as the development of new metrics to capture cognitive processes in complex tasks.

Response dynamics: How continuous response monitoring can test modern process models

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As process models of decision making have become increasingly nuanced, the methods by which these models are judged and compared have not kept pace. For example, traditional tools like choice matrices only provide discrete acquisition data meaning choice processes can be inferred but not directly measured. Fortunately, in other areas within cognitive science, tools exist to provide the high-fidelity information needed to test the underlying assumptions of complex modern decision models. Recently, researchers have capitalized on the robust reciprocal connection between the motor system and the cognitive system to study the online formation of a response (Spivey, 2008). This work, labeled as the study of response dynamics (Johnson & Koop, 2011), allows for continuous recording of the motor trajectory that produces a response. We present two studies that introduce this paradigm and its innovative analyses to traditional areas of decision-making research. First, we validate the paradigm for decisions under risk using traditional economic gambles, and show systematic differences between risk-seeking and risk-averse response trajectories, as well as between gain and loss domains. Second, we extend the paradigm to moral decision making in order to test predictions of dual-systems models of moral judgment. We show differences in participants' mouse trajectories based on whether they accepted or rejected proposed courses of action. In summary, we propose that continuous response tracking is a robust technique that can provide the high quality data necessary to test modern process models.

How to compare process models for decision making: A multiple measure maximum likelihood approach to model evaluation

John Galsworthy Building Room JG0002

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One of the limitations of classic 'as-if models' for judgment and decision making such as expected utility theory or weighted linear judgment models is that their predictions are naturally limited to choices or judgments only. Process models, in contrast, are more precise and additionally provide a wealth of testable predictions on multiple dependent measures such as decision times, confidence, information search, fixation duration, arousal, etc. This results in a methodological and a statistical challenge. First, it becomes harder to identify tasks that optimally differentiate between the set of models considered, second, the fit between data and predictions on multiple dependent measures (including binary and continuous data) has to be integrated into an overall evaluation for each model. We present an integrative approach that solves both issues at the same time. It is based on a maximum likelihood method for integrating multiple measures into a single likelihood index for model evaluation (Gloeckner, 2009, 2010) and a method to select the most diagnostic decision tasks systematically (Jekel, Fiedler, & Gloeckner, under review).

A response time methodology for tracing processes in decision strategies

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The current project aims to reveal a fine-grained structure of mental processes involved in decision making strategies. For this purpose we designed an experiment utilizing system factorial technology (SFT). SFT is based on analyzing response times (RT) and allows identification of the order (serial vs. parallel) and amount (restricted versus exhaustive search) of processing. Both properties allow for clear delineation between decision strategies used in compensatory or non-compensatory environments, as well as differentiation among strategies within each general class. We applied SFT to a pair-comparison inference task in which participants had to decide which of the two objects scored higher on a criterion. The SFT revealed distinct patterns of RT results: in the non-compensatory environments the decision strategies were based on serial cue-by-cue processing, with possible termination on the first discriminating cue, whereas in the compensatory environment the decision strategies were based on parallel exhaustive processing of all cues. The SFT test and RT patterns allowed for fine-grained insights into the processing structure of decision strategies, which could not be achieved by solely analyzing choice outcomes or simpler measures of RT (e.g. mean differences).

Crowdsourcing empirical research: Amazon mechanical turk

John Galsworthy Building Room JG0002

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On online labor markets, 'requesters' can recruit 'workers' for the completion of computer-based tasks. On one such market, Amazon Mechanical Turk (AMT), researchers who use experimental and survey methods can reach a diversity of relatively high-quality participants in a cheap and timely fashion. These advantages come with little if any cost: AMT has features that allow researchers to avoid many threats to experimental validity, and our empirical investigations revealed no differences in data quality between workers on AMT and more traditional participants. As a result, AMT is now populated by a large number of researchers that run one-shot surveys on a continuous basis. Online labor markets offer opportunities for JDM researchers that go above and beyond those of a convenience sample for one-shot experiments: Qualifications allow experimenters to group together participants according to characteristics predefined by AMT (e.g., nationality) or previously measured ad-hoc variables (e.g., participation to a previous experiment), enabling researchers to conduct cross-cultural or longitudinal research. Moreover, messaging workers allows scheduling experiments that require simultaneous participation. Combined with the possibility of incentivizing behaviors using bonuses, this creates the opportunity of conducting game theoretic experiments. The ready availability and the 'shared nature' of online labor markets also place some concerns. For instance, pooling the data from several researchers and analyzing the results from a new survey, we found substantial reason to be concerned about duplicate responses on AMT. However, these concerns are not insurmountable and can be avoided if proper precautions are taken.

Using visual representations to improve JDM

John Galsworthy Building Room JG0002

14:30 - 16:30

Convener

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Scientists in the field of JDM have identified countless ways in which people may be biased when making judgments and decisions. The proposed symposium aims to show that errors in JDM may arise because of the use of inappropriate information formats that may complicate the task and mislead decision makers. The symposium includes five empirical presentations followed by a discussion from leading experts across the globe (USA, Germany, Spain, UK, and France). The presentations demonstrate the usefulness of visual representations for improving judgment and decision making (including risk and probability). The presentations refer to various types of visual representations (e.g., icon arrays, pictographs, bar graphs and tables) and decision makers (i.e., lay people in the medical and health domains, and professionals in the criminal justice domain). They demonstrate how visual representations can debias people e.g., reducing “side-effect aversion”, framing effects, and denominator neglect, and increasing understanding of statistical information. The studies also highlight some of the conditions under which visual representations outperform other forms of communicating information relevant for judgment and decision making, as well as the features of the visual representations that may make them effective, and the characteristics of individuals who may most benefit from visual representations. The findings from this growing body of research on visual representations has concrete implications for the policy and practice of presenting information relevant for JDM that can help both lay and professional decision makers across various domains make sound judgments and decisions.

Using visual representations to improve JDM**Pictures and frames: On avoiding framing effects using visual representations****John Galsworthy Building Room JG0002****Mandeep K. Dhimi**University of Cambridge
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Framing effects appear to be ubiquitous. Studies show that people are risk-averse under gain frames and risk-seeking under loss frames. We propose the use of visual representations (i.e., icon arrays) as a debiasing technique for such framing effects. The present study (1) demonstrated the effect of gain-loss framing on criminal justice decision makers, and (2) examined the debiasing effect of visually structured risk messages. The study employed a mixed design: Message frame (gain vs. loss) was manipulated within-subjects, and message format (numerical vs. visual) was manipulated between-subjects. Data was collected from 60 senior police officers in two phases. In both phases, we measured officers' judgments of the accuracy of a counter-terrorism technique in identifying whether a known terror suspect poses an imminent danger. Officers also decided whether they would recommend the technique to the Home Office, and rated their confidence in this recommendation. Manipulations of message frame and message format were successful. We found that when information about the effectiveness of the counter-terrorism technique was presented in a numerical format, officers were susceptible to the gain-loss framing effect in their accuracy judgments and recommendations. However, when the information about the technique was represented visually using icon arrays, there were no such framing effects. Officers were significantly more confident in their recommendations when the information was represented visually than numerically. We offer potential explanations for the debiasing effect of visual aids, and implications for communicating risk to professional decision makers.

Using visual representations to improve JDM**Effective communication of risks:
How can we increase
condom use and STD screening in
young adults?****John Galsworthy Building Room JG0002****Rocio Garcia-Retamero**University of Granada
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Sexually Transmitted Diseases (STDs);including the human immunodeficiency virus (HIV)/AIDS;are among the most common infectious diseases in young adults. In a two-phase longitudinal experiment we examined the effects of a brief risk awareness intervention (i.e., a sexual health information brochure) in a large sample of sexually active young adults. We assessed the influence of gain- and loss-framed messages, and visual aids, on affective reactions, risk perceptions, attitudes, behavioral intentions, and reported behaviors relating to the prevention and detection of STDs. Results indicate that gain-framed messages induced greater compliance for prevention behaviors (e.g., condom use), whereas loss-framed messages were more effective in promoting illness-detecting behaviors (e.g., making an appointment with a doctor to discuss about STD screening). However, when visual aids were added to the health information, both the gain- and loss- framed messages were equally and highly effective in promoting health behaviors. Participants' attitudes towards the health behaviors and their behavioral intentions mediated the influence of the framed messages on prevention and detection of STDs. Theoretical, economic, and public policy implications of these results are discussed.

Using visual representations to improve JDM**Advantages and disadvantages of using visual displays to convey risk/benefit tradeoffs in medical treatment situations****John Galsworthy Building Room JG0002****Erika Waters**Washington University School of Medicine
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This presentation will describe research examining decisions involving medical tradeoffs. The influence of visual displays on perceptions of risks, benefits, and decision-making will be reviewed and possible mechanisms will be explored. Many experiments have sought to determine whether, how, and under what conditions people make non-normative decisions when faced with preventive medical treatments that have side effects. Most experiments have recruited large samples (i.e., $N \geq 2000$) of both patient and non-patient populations to evaluate and make decisions about both real and hypothetical treatment tradeoffs. Multiple variables were manipulated across studies, including the presence/absence of a side effect, the presence/absence of a visual display, and the format of the visual display. Preventive treatment decisions were unduly influenced by side effects. This resulted from participants declining treatments with side effects even when the benefits outweighed the risks or when adding the side effect did not change the individual's overall chances of illness. Visual displays, particularly standard pictographs and pictographs that highlight the incremental change in risk/benefit afforded by the treatment, increased comprehension. They also eliminated side effect aversion in some hypothetical decisions. However, they did not increase willingness to take a real medication with real side effects. Several explanations for the effects of side effects on treatment decisions were explored, including accurate comprehension of the tradeoff, but the precise mechanism remains unknown. The undue influence of side effects may discourage people from taking advantage of treatments that can reduce their risk of illness. Future research should explore the cognitive, affective, and social decision making processes surrounding these difficult decisions.

Using visual representations to improve JDM

Different people benefit from different representations of statistical information

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Informed medical decision making requires comprehending statistical information. This study aims to improve the understanding of conveying health-related statistical information with graphical in comparison to numerical representations. First, we investigate whether the iconicity of representations (i.e., their abstractness versus concreteness) affected comprehension and recall of statistical information. Second, we investigate whether graph literacy helps identify individuals who comprehend graphical representations better than numerical representations. Participants (N=275) were randomly assigned to receive different representations of health-related statistical information, ranging from very low iconicity (numbers) to very high iconicity (icon arrays including photographs). Comprehension and recall of the information were assessed. Additionally, participants rated the accessibility of the information and the attractiveness of the representation. Graph literacy was assessed with a recently developed scale (Galesic & Garcia-Retamero, in press). It was shown that the only difference between representations that affected comprehension and recall was the difference between graphics and numbers, while the actual level of iconicity of graphics did not matter. Individuals with high graph literacy had better comprehension and recall when presented with graphics instead of numbers, and they rated graphics as more accessible than numbers, while the reverse was true for individuals with low graph literacy. Both groups judged graphics to be more attractive than numbers. An assessment of graph literacy distinguishes individuals who are best informed with graphical representations of statistical information, and those who are better suited to numerical representations.

Using visual representations to improve JDM

Visual representations reduce conjunction and disjunction fallacies: Testing the overlapping classes hypothesis of fuzzy-trace theory

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Although visual representations improve judgment, much work is not theoretically motivated. According to fuzzy-trace theory, conjunction fallacies, disjunction fallacies, and base-rate neglect are caused by class-inclusion confusions about the referents of nested or overlapping classes. As a result, reasoners focus on numerators, neglecting denominators (Reyna & Brainerd, 2008). The illusion is made more compelling by the presence of salient gist representations and by failure to retrieve reasoning principles that are known and understood. Visual representations that make classes discrete rather than overlapping are predicted to reduce reasoning errors. Such representations (e.g., icon arrays, tagging, and background-foreground salience using stacked graphs) have been implemented successfully. We present results of three experiments in which a novel visual representation—2X2 tables to represent discrete classes—is used to reduce errors in judging conjunction and disjunction probabilities (rather than frequencies). Specifically, gist representations were manipulated with analogies, and the strategy of ignoring relevant denominators was counteracted with training in using 2 x 2 tables to clarify class-inclusion relations. Estimated conjunctive and disjunctive probabilities were assessed for fallacies and semantic coherence – the latter a constellation of estimates consistent with class relations (e.g., subsets rather than identical sets). As predicted, in all experiments, analogies increased semantic coherence and using 2 x 2 tables reduced fallacies and increased semantic coherence. Results from an experiential learning paradigm are also presented, testing predictions of a mathematical model of conjunction and disjunction fallacies based on fuzzy-trace theory.

Preference and choice

**Imagery and affect in Swiss farmers:
Climate change mitigation decisions**

John Galsworthy Building Room JG3004

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Lay people's perspective of climate change can provide helpful information for the actual discussion about political actions to reduce greenhouse gas emissions and to deal with climate change consequences. As they are especially vulnerable by environmental changes, the view of people economically depending on natural resources is of particular interest in this context. The present study thus investigates farmers' risk perception and decision making concerning climate change issues. By employing a simple word association technique, the affective imagery method, it focuses on the role of imagery and affect within these processes. Affective images unify cognitive representations of and feelings of good or bad toward a certain stimulus. Results show that farmers mention all kind of observations as well as concern about climate change. Nevertheless, there is also a lot of scepticism because respondents do not believe in climate change or consider the whole thing as an exaggeration or a natural development. Agriculture-specific images are mentioned by only 1.9%, nearly as many respondents falsely bring ozone layer in relation to climate change. All associations but those in the categories "scepticism" and "agriculture" are linked with negative affect. This pattern results either due to reactance or to the fact that farmers also see benefits of a global warming, like "corn grows better". Next, images and affect will be set in relation to other constructs from the same survey.

Preference and choice**Influencing factors of the willingness to support climate policy measures****John Galsworthy Building Room JG3004****Aysel Tikir**ETH Zurich
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Climate change is a rather complex issue and needs a more comprehensive analysis and theory driven research. Therefore we used several theoretical approaches to analyse the willingness to support climate policy measures. The goals of this study are a) to assess the perceptions regarding climate change; b) to identify influencing factors of the willingness to support certain political measures; and c) to test different theoretical approaches within the climate change context. To achieve these goals an online survey among all university members (students and staff of a Swiss university, about 26?000 people) was conducted in November 2009. Data were analysed by means of descriptive statistics and a behaviour model including the influencing factors of the willingness to support certain policy measures was built using the Structural Equation Modeling (SEM) approach. SEM results show that Severity and Vulnerability had positive effects on the Problem Awareness ($b=.24$ and $b=.26$ respectively). Control Beliefs and Responsibility Attribution had also positive effects on Problem Awareness ($b=.30$ and $b=.38$ respectively). The explained variance in Problem Awareness is 82% and indicates the importance of the influencing variables. On the other hand, Problem Awareness influences the Willingness to Support Political Measures directly ($b=.40$). The model explained 16% of the variance in Willingness to Support.

Preference and choice**Advancing affective rationality:
Judgment of social, economic and
environmental harms and benefits in
energy-related decision-making****John Galsworthy Building Room JG3004****Roh Pin Lee**Technische Universität Bergakademie Freiberg
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Public risk perceptions are critical components in the socio-political and economic-ecological context in which energy decisions take place. Previous studies have shown that risk perceptions of different energy technologies depend on how risk is defined, and on the dimensions perceived. In our study, we re-examine the commonly observed inverse relationship between perceived risk and benefit by distinguishing between social, economic and environmental dimensions in the energy context. Additionally, to reduce complexity, we replace 'risk' with 'harm' to identify public perceptions of negative outcomes for different energy options, regardless of the likelihood of harm actually occurring. Our research hypotheses are so far empirically tested in Germany on a full range of energy sources (fossil, renewable and nuclear) with 275 respondents from a leading university in natural resources and energy. Findings indicate that people significantly differentiate between perceived levels of harm and benefit posed by different energy options to the society, economy and environment. Furthermore, in addition to being confounded in people's minds, harm and benefit judgments appear to be moderated by gender. Our study utilizes the concept of affective rationality to better understand affect-loaded judgments and decision-behaviours in the energy context.

Preference and choice**Measuring social value orientation****John Galsworthy Building Room JG3004****Kurt Alexander Ackermann**

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Narrow self-interest is often used as a simplifying assumption when studying human decision making behaviour in social contexts. However, people exhibit a wide range of different motivations when choosing among interdependent outcomes. Measuring the magnitude of the concern for others, sometimes called Social Value Orientation (SVO), has been in the focus of social scientists for decades and several different measurement methods have been developed thus far. We introduce a new measure of SVO, which we refer to as the Slider Measure, and has several advantages over existent methods. A detailed description of the new measure is provided, along with norming data that provides evidence of its solid psychometric properties.

Preference and choice

The excess choice effect for volunteer recruitment

John Galsworthy Building Room JG3004

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Volunteering is beneficial to individuals in terms of greater well-being and life satisfaction (Meier and Stutzer, 2008; Borgonovi, 2008) and to society in terms of greater service provision at little cost (NCSR, 2007). However, the number of voluntary organisations in the UK is vast (>164,000) and rising (The Cabinet Office, 2008). Focussing on volunteering recruitment, we demonstrate the existence of the too-much-choice effect when choosing a volunteering organisation from extensive choice sets across two studies. Study 1: 52 student participants interested in starting volunteering were directed to the Volunteering England website (containing 115 organisations) and their experiences recorded. In general they found the decision difficult, wanted more structure and crucially the more organisations individuals looked at the greater their deferment likelihood. Importantly, this relationship was significantly mediated by negative mood. Study 2: 134 participants were asked to select an organisation to volunteer for from a choice set of 10 or 30 hypothetical organisations (to counter prior preferences) with an option to defer. Replicating Study 1, participants again were more likely to defer in the larger choice set and again this was mediated by negative mood. The findings suggest that the number of volunteering organisations from which a potential volunteer must choose poses a potential barrier to the recruitment of volunteers. This highlights the needs for various choice architectures such as structure and guidance to facilitate volunteering decisions.

Preference and choice**Whom would you hire? Differences in expert-novice decision-making strategies****John Galsworthy Building Room JG3004****Robert Hanak**University of Economics in Bratislava
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Previous research demonstrated that experts use more often a limited set of relevant cues to make their decision (i.e., non-compensatory strategy) whereas novice tends to use systematic strategies (i.e., compensatory strategy). We tested the generalisability of these results in a personnel selection context with a sample of students as novices and experienced recruiters as experts. Strategies were traced based on participant's decision in four subsequent hiring decision trials designed individually and by self reported judgments. Results showed that contrary to prevailing views, both experts and novices used more the WADD compensatory strategy and that experts used it more often than novices. Furthermore, to make their decision, experts allocated more importance to cues predicting future performance than novices. The controversial nature of the results on strategies preference put into question the established view on decision making strategies of novices and experts and casts a new light on decision making in personnel selection. Possible explanations and implications for these results are discussed.

Preference and choice

Visualization cognitive style, numeracy and decision Making

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In this poster we consider the importance of Visualization Preference, its potential relationship to Numeracy and the implications it may have for decision making and Marketing. Research has identified visualization preference as a cognitive style characterized by two components: object and spatial visualization (Blazhenkova & Kozhevnikov, 2009). Object visualization is a mental representation richly elaborated, detailed, vivid and holistic. Spatial visualization is characterized by the breaking down in parts of an image, schematic representation, and elaboration on the spatial relationships between the different parts of an image. Though inconclusive, literature suggests that preference for visualization might affect mathematical performance (Hegarty and Kozhevnikov, 1999), a basic component of numeracy. Numeracy, the basic understanding of mathematical concepts needed to function in daily life, is important for consumers (Withnall, 1995), as high numerates have more precise feelings towards a problem involving a numerical calculation (Peters et al. 2006). This is the first study arguing that numbers may inform cognition (System 2), and affect (System 1). Despite the importance of numeracy in consumption situations, the marketing literature has devoted scant attention to the topic, with most studies carried out in the area of medical decision making (see Dieckmann, 2008 for a review). The marketing literature recognizes that matching consumers' cognitive style and format of information presentation 'generates more positive attitudes towards a brand, purchase intention, and brand choice' (Ruiz & Sicilia, 2004, p. 657). We therefore propose to investigate the links between Visualization Style, Numeracy and integrate the findings in the Marketing literature.

Preference and choice**The mechanism of fast value integration****John Galsworthy Building Room JG3004****Konstantinos Tsetsos**

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When dealing with novel choice alternatives, the cognitive system must integrate information about the features of these alternatives. A central question in decision making research is how such 'value integration' occurs. Insights into this process may be gained by considering value-integration in simplified contexts where many instances of values on the same dimension are presented sequentially. Here we used fast (250 or 500 ms per item) sequences of numerical values (described as 'the returns of market-stocks'), in order to examine the mechanism of value integration. At the end of each sequence, the participants had to select the sequence with the highest mean value. The main questions of interest were the dependence of the evaluation accuracy on sequence length (the integration bound), and the temporal profile with which decision-makers weight the values (recency vs. primacy). The results demonstrate a significant range of integration (accuracy improved, even in the range of 12-24 items per stock) and a significant recency. The data are well accounted by a simple mechanism based on leaky-integration, and they rule out a number of alternative mechanisms, such as decision on the basis of the maximal values (of each sequence), or of a few samples of items maintained in working-memory.

Preference and choice**When no choice is better than some choice:
The case of negative outcomes****John Galsworthy Building Room JG3004****Rebecca Hafner**

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Contrary to popular belief increased choice is sometimes associated with decreased chooser satisfaction. This is referred to as the excess choice effect (ECE). The current research was designed to investigate whether presenting a default option might attenuate the ECE. In a chocolate 'taste-test' study, participants were presented with an extensive selection of ('luxury' vs. relatively 'unpleasant') chocolates, and selected one to sample via either an active choice, or through their decision to stick with/switch from a default option. Contrary to what participants were informed the chocolates presented were actually all the same flavour, allowing us to investigate the impact of the choice manipulation with the objectively same decision outcome. A control condition exposed to only one ('luxury' vs. 'unpleasant') chocolate allowed us to test whether having the chance to choose an alternative but not exercising it, i.e. sticking with the default, influenced satisfaction. For 'luxury' chocolates 95.7% in the default condition stuck with the default. There was no significant difference in satisfaction or regret between default stickers, switchers, active choosers or controls. For the relatively 'unpleasant' chocolates 100% stuck with the default, and again no differences in satisfaction or regret were found between active and default choosers. However, satisfaction among control participants was significantly increased. Thus merely having the potential for choice decreased satisfaction when the outcome was relatively negative, an effect significantly mediated by regret. Results are considered in relation to the growing ECE literature, and the libertarian paternalistic approach to choice architecture.

Preference and choice**KAIROS - About the right time to decide:
A self evaluation test of individual
decision making behaviour****John Galsworthy Building Room JG3004****Maximilian Lanzenberger**Management Diagnostics
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The author is discussing the power and influence of environmental conditions versus personal behaviour on decision making processes. Based on theoretical studies and on field research (individual patterns of decision making behaviour of managers in assessment situations), he has developed an attitude scale, identifying individual and behavioral decision making habits and their interrelationships. Eight decision modes are defined, characterized as being mainly: Energetic, Pragmatic, Solicitous, Flexible, Intuitive, Communicative, Autonomous, Balanced. Each decision mode is represented by 28 items (descriptions of behaviour); each decision mode is opposed to each other decision mode (represented by its items) four times in randomized form, and a total of 112 choices have to be made. Up to now the scale is based on the statistics (percentiles, correlations between decision modes etc.) of 1.100 individuals (German version). Average reliability correlations (between first and second version) between 0,70 and 0,87. Construct validity studies show plausible results with MBTI, NEO-PI-R and GZTS in the relevant dimensions. There is a German and English version of the Attitude Scale.

Preference and choice

Vaccination decisions and violations of the principle of invariance

John Galsworthy Building Room JG3004

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Vaccines are not very popular, especially when they are not the status quo, despite their value in reducing the likelihood of infections or the severity of diseases. The low vaccination compliance can be demonstrated in the vaccination coverage for Influenza last winter (2009) in the U.S.: according to the NHIS (National Health Interview Survey), only 19.7% of the healthy adults age 19-49 vaccinated against Influenza, and 34.2% of adults age 50-64 years. A possible explanation for the low vaccination compliance is that vaccination is perceived as exposing the individual to a certain or almost certain risk of experiencing side effects. In contrast, the exposure to the disease is perceived as probabilistic and therefore more avoidable. However, many viruses are airborne, making the risk of exposure very high, if not certain, but not all people develop symptoms. Raising people's awareness of this distinction may increase their willingness to be vaccinated. With this in mind, we conducted an experiment which included two conditions of exposure to the disease-certain vs. uncertain exposure- while keeping the probability of being sick constant. We hypothesized that the willingness to be vaccinated will be higher when exposure is certain. In both conditions, participants were also asked to estimate how likely they are to develop symptoms if they do not get a vaccine. When exposure to the disease was certain, most participants (74%) said they would get a vaccine, compared to 51% under uncertain exposure. The willingness to be vaccinated was predicted by the level of exposure and participants' estimates of developing symptoms in case of non-vaccination. Our study suggests that part of the low willingness to be vaccinated may be due to violations of the principle of invariance.

Preference and choice

More choice is not necessarily more variety: An experiment with prescription drug plans

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Aim: This study develops and tests a conceptual framework that accounts for the number of alternatives in the choice set and the range of variety that the alternatives in the set offer a consumer. We test our hypotheses with a hypothetical study that closely resembles enrolment into Medicare Part D prescription drug plans, a recent and important US health care policy aimed at older adults. **Method:** Participants were randomized to a level of variety (high, low) and number of drug plans (2, 5, 10, or 16) and shown a choice of drug plans that reflected this randomization. After choosing amongst the drug plans, respondents were asked a set of questions about their choice. Here they were asked to assess the benefits, costs, and net benefits of their chosen plan. In our empirical work, we test whether the benefits, costs, and net benefits varied in the low and high variety choice sets, both overall and when we controlled for the number of options in the choice set. **Results:** The mean benefit for a chosen plan in the low variety condition is significantly lower than the mean benefit in the high variety condition. Furthermore, our results show that the benefits in the high variety condition show a significantly different distribution across choice set size, while they do not for those in the low variety condition. We find fewer differences for costs and net benefit between the two different conditions. **Conclusion:** The study lends support to the addition of a variable that accounts for the variety of the choice set, in addition to the number of alternatives. There are also important implications for how a consumer perceives variety, in general as well as in our specific context.

Preference and choice

Expanded access to free prescription drugs and its impact on social welfare. The case of cholesterol-lowering agents in Italy.

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This paper intends to provide an evidence based contribution to the policy decision to expand publicly funded access to prescription drugs and its impact on social welfare, defined as the governmental provision of economic assistance to persons in need. The scenario is the Italian National Health System (SSN) in January 2004: the existing prescribing limitations on statins (cholesterol-lowering agents) were relaxed and only a marginal prescription fee was applied, similarly to any other fully reimbursed medicine. Prescribing information on a cohort of 3,175,691 Italian residents was analysed in the study, during a two year period (from January 2004 to December 2005). According to published Italian data, prior to the decision to expand access to statins the percent of treated patients persistent to treatment was in the range of 50 to 60 percent. The objective of the study was to measure the percent of new patients persistent and compliant to statins twelve month after initiating treatment. During the observation period, only 7% of the 33,139 patients enrolled were persistent and 6% compliant (84% of compliant subjects were also persistent). The total incremental cost sustained by the Italian SSN for the cholesterol lowering treatment of the new patients observed in the study amounted to 4.77 million. Approximately 20% of the total incremental cost was used by persistent and compliant patients, while the remaining 80% was wasted in financing a sub-optimal, clinically inefficient, sporadic use of statins. Expanded access to prescription drugs minimised the impact of income on patients' choices, but it raised additional issues in terms of efficient allocation of public budget, such as rational prescribing and coverage subject to persistence and compliance to therapy.

Preference and choice

Girls' versus parents' preferences for HPV vaccination: A discrete choice experiment

John Galsworthy Building Room JG3004

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Aim: This study compares girls' and parents' preferences for Human Papillomavirus (HPV) vaccination characteristics, and assesses how these characteristics relate to their uptake intentions. **Method:** A discrete choice experiment (DCE) was conducted in the Netherlands among a sample of girls aged 11-16 years and among another sample of parents with a daughter aged 10-12 years. Questionnaires containing DCE choice sets were administered between March and June 2009. Choice sets consisted of different levels of four characteristics: degree of protection against cervical cancer, duration of protection, risk of serious side effects, and age at which vaccination is given. Respondents had to choose between two hypothetical HPV vaccination scenarios and an opt-out scenario. A multinomial logit regression model was used to analyse the results. **Results:** Response rates were 325/359 (91%) for girls and 307/983 (31%) for parents. Results showed that all vaccine characteristics, as described in the choice sets, influenced girls' and parents' preferences for HPV vaccination ($p < 0.05$). Parents had a more positive attitude towards getting a HPV vaccination at a later age ($p < 0.01$) and evaluated the risk of serious side effects more negatively than girls did ($p < 0.01$). **Conclusions:** This study showed that parents and even girls were able to make trade-offs reading numerical rates. Overall parents' and girls' preferences for HPV vaccination were similar. However, girls evaluated serious side effects less negatively than parents. Parents favoured vaccination at a later age than girls did, possibly because parents underestimate their daughter's age of sexual initiation. Awareness in parents (and girls) that vaccination is less useful after infection with HPV is essential.

Monday

Tuesday

Wednesday

Thursday

Preference and choice

Identifying components of decision aid interventions that enable informed decision making about dialysis modality

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Patient decision aids (pDAs) are complex interventions with several component parts designed to help patients make an informed decision between two or more medically reasonable options (Bekker et al., 1999; Bekker, 2010; O'Connor et al, 2009). However, there is a paucity of evidence to indicate which component parts are the active ingredients that help people make decisions (Feldman-Stewart et al., 2004; Bekker, 2010; Fagerlin, 2009). This research investigated the added values of three aspects of pDAs over and above the provision of evidence-based information on people's decision making processes and outcomes. These studies are part of a project evaluating the Yorkshire Dialysis Decision Aid (YoDDA). In Study 1 we investigated how best to structure details about dialysis treatment options (comparing information structured by-option vs. by attribute and even vs. un-even categorization of options). In Study 2 we compared the effect of different values clarification (VC) techniques (no VC, implicit VC, explicit ratings of values, and explicit global evaluations). The effect of a decision narrative describing the decision making process only or including also the decision by the narrator was tested in Study 3. We measured: information used during decision making; treatment choice; decision quality; knowledge; values; perception of risk; acceptability of resource. Preliminary findings indicate the resource was easy to understand but data analysis is not yet complete. The information content of patient resources can be structured in a way that encourages patients' active engagement with the treatment details and reduces the likelihood of biasing their final representation of the decision problem. Appropriate VC techniques can help patients' decision making.

Preference and choice**Influence of causal beliefs on judgment and decision making in medical and financial domain****John Galsworthy Building Room JG3004****Stephanie Muller**University of Granada
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People encounter a variety of problems in a wide range of domains that require adaptive, content-specific solutions. In two experiments, we examined the influence of domain-specific causal beliefs on judgment and decision making. Participants made 120 decisions in a two-alternative forced-choice task framed either within medical or financial domain. Before each decision, participants could actively search for information about four cues. Two cues generated the outcome and the other two had a preventative relation to the outcome. One generative and one preventive cue had high, remaining cues had low validity for predicting the outcome. To examine the strength of domain-specific causal beliefs, we manipulated empirical evidence by switching the validities of cues after half of the trials. Results revealed a substantial influence of causal beliefs in decisions and judgments as a function of the domain: While participants strongly relied on their initial causal beliefs when making causal judgments and decisions in the medical domain, they adapted to the empirical evidence in the financial domain. We conclude that the strength of causal beliefs is shaped by domain-specific knowledge and that it influences the degree empirical evidence is taken into account in judgments and decision-making.

Preference and choice**The effect of financial literacy and emotions
on intent to control personal budget:
A study among Israeli college students****John Galsworthy Building Room JG3004****Shosh Shahrabani**The Max Stern Academic College of Emek Yezreel
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Financial literacy skills enable individuals to make informed decisions about their money and minimize their chances of being misled on financial matters. Yet previous studies show that the level of financial literacy among young people in developed countries is low. The current study's objectives were (a) to examine financial literacy (FL) among Israeli college students, (b) to examine gaps in FL between Jews and Arabs, (c) to analyse the factors affecting students' FL, (d) to analyse the factors affecting intent to control personal budget without debt. A financial literacy survey was distributed in March 2010 among 574 students from two colleges in Israel. The mean percentage of correct answers to the survey was below 50%, indicating a low level of financial knowledge. In addition, the results reveal large gaps in FL between Jews and Arabs. Regression analysis results showed that students with a higher level of financial knowledge were more likely to be studying economics and business administration, be male and Jewish, have more work experience and be further along in their studies. Analysis of the second model showed the following factors to positively affect intent to control personal budget without debt: higher level of financial literacy, higher level of positive personal finance opinion, higher income, less frequent overdraft in checking account and higher level of negative emotion toward possibility of a large checking account debt. The results suggest that to change Israeli students' intent to control their budgets, FL should be promoted, especially among Arab and female students, and attitudes toward money management should be changed. Moreover, maintaining a budget may reduce negative feelings associated with the consequences of financial debt.

Preference and choice**What does an affective-oriented product really mean for consumers?****John Galsworthy Building Room JG3004****Hui-Yi Lo**Yuan Ze University
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Considering an affective-oriented product, consumers are willing to buy it because they perceive it based on their needs, values, and interests. According to this point of view, the present study adopted a musical celebrity doll to examine the relationship between relevant psychological factors and buying intention. An online questionnaire was used to recruit participants. Results indicate that product appearance and gratification factors were main factors to affect consumers' buying decision. Findings also showed that attachment behaviour factor only has an influence on fan-group. This research suggests that marketers should take consumer psychological factors into account, when they design an affective-oriented product.

Preference and choice

Capturing consumer food choice in action: An experience sampling study of consumer decision making

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How do consumers make decisions about food? What are the relative contributions of psychological and sensory factors in consumption decisions? How are consumers affected by emotional vs. rational considerations when making consumption decisions? In an ongoing interdisciplinary research project we examine these questions. We use the Experience Sampling Method (ESM) to assess emotions/other states and consumption decisions simultaneously. Using this technique requires that participants carry a small, handheld computer or palmtop with them at all waking hours, for a specified period (e.g., a week). During the week, the palmtop emits sound signals at predetermined or randomized intervals. Each time the participant hears this signal, he or she is supposed to immediately respond to various questions administered by the palmtop about his or her latest experience. One advantage of the ESM is that it permits one to study personal events as they unfold in their natural and spontaneous context. Another advantage is that it renders possible repeated measurements over time, so that one may obtain a better sense of whether a specific phenomenon occurs in particular recurrent patterns, for instance at specific times of the day. This study will provide new insights about everyday decision making—especially consumer food choice.

Preference and choice**Compulsive buying behaviour: Obsessive acquisition, collecting or hoarding?****John Galsworthy Building Room JG3004****Hui-Yi Lo**Yuan Ze University
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We report two investigations into compulsive shopping behavior. The first showed that compulsive shoppers are obsessive in acquiring certain (gender specific) classes of product. Compared to normal shoppers, they spend more money on these products and shop for them more frequently. The second study showed that an obsession with acquiring these products rather than a desire to collect or hoard them is a significant factor in producing compulsive shopping behavior. This is consistent with the notion that compulsive shopping is an addictive habit reinforced by the relief from craving produced by the act of purchasing particular products. In our Taiwanese but not our British sample, compulsive shopping led to hoarding behavior. This implies that the Taiwanese are more reluctant to discard items that they do not use. We discuss cultural factors that may account for this finding.

Preference and choice

Fluency attribution and the outcomes of product placement

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Consumers have witnessed a dramatic increase in the number of product placements that occur across all forms of media. Despite this enthusiastic use of product placements, researchers have not determined whether or not this form of advertising produces profitable outcomes for featured brands. In the framework presented here, we sought to outline how basic cognitive processes may be used to account for some of the divergent consequences that occur for product placements. Unlike other frameworks that treat memory as a separate outcome of product placements, we conceptualize memory as nonanalytically influencing other more critical outcomes (i.e., brand evaluation and selection). The nonanalytic influence of memory is hypothesized as occurring via an attribution that is made about the ease experienced when processing a brand that has been previously encountered. To examine this nonanalytic framework, two studies were conducted. In each of these studies, participants were presented with a narrative containing a number of brand presentations. Later, participants completed tasks that assessed memory and brand preferences across the various studies. The first study revealed that participants were more likely to select a brand after it had appeared in a preceding narrative. The second study revealed that orienting participants to the processing experienced while reading the narrative eliminated the positive effect for featured brands. However, when the brand's prior presentation in the narrative was not made salient, a brand's prior presentation in the narrative lead to more positive choice ratings, suggesting that fluency-based perceptual processing nonanalytically influenced participants' brand preferences.

Decision making under risk and uncertainty**Asymmetric discounting in valuation of reward points****John Galsworthy Building Room JG3004****Manabu Akiyama**

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Reward points as sales promotion tools are of increased prevalence as a type of currency. This study explored that the degree of discounting the subjective value of points depends on the direction of point conversion as well as asymmetric discounting in temporal choice. Cash-points direction is the conversion of cash into reward points, and points-cash direction is the conversion of reward points into cash. Experiment 1 asked 164 undergraduates and graduates to indicate an acceptable amount with open-ended questions in both directions of point conversion, using reward points issued by a major convenience store chain. Respondents discounted the value of the points more in the cash-points direction than in the points-cash direction. Additionally, in the points-cash direction, more respondents did not discount in the conversion of the points into cash. In Experiment 2, 300 volunteers completed an on-line survey, using Amazon gift points. Participants of cash-points direction were given a series of binary choices between a 500-yen gift in cash and a gift certificate in points, worth 1 yen each; the amount value of the points increased. Points-cash respondents were given a series of binary choices between a 500-point gift certificate and a cash gift; the amount value of cash increased. The result repeatedly showed asymmetric discounting in the valuation of reward points between the cash-points direction and the points-cash one. We have found out asymmetric discounting in the valuation of reward points. This result suggests that a change of the conversion direction in valuation of reward points causes consumers to shift their focus of attention to different aspects of reward points.

Decision making under risk and uncertainty**Whether it is reality or imaginary,
people are still spurred on by their
previously sunk costs****John Galsworthy Building Room JG3004****Poonam Gill**University of Leicester
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The sunk cost effect can be defined as the heightened tendency to invest in an endeavour once investments of time, effort or money have been made (Arkes & Blumer, 1985). Much of the research in this area has been based on the examination of hypothetical one-shot decisions (e.g. Arkes & Blumer, 1985; Strough, Mehta, McFall & Schuller, 2008). Recent literature (Beaumesiter, Vohs & Funder, 2007) has specified the possible distinctions between hypothetical and actual behaviour: people may not always do what they think they will do. The present study had two aims: firstly to examine the effect of sunk costs in repeated decision making- specifically decisions to chase losses and secondly to assess if the effect of sunk costs varied as a function of whether the sunk cost was real or hypothetical. Sixty- six undergraduate students played a one-player, sequential risk-taking game as well as responding to a hypothetical scenario in which they were required to imagine the decisions they would make in a similar sequential, risk taking game. In both the behavioural game and the hypothetical scenario, the sunk cost was the initial entrance fee paid to play the game. The results of the present study signify that in both real and hypothetical decision making situations, sunk costs have a significant impact on subsequent behaviour and repeated decision making. That is individuals continue to chase losses as a function of their previous costs in a particular endeavour. The study further demonstrates that people's self-reports of their decision making and behaviour in a hypothetical sunk cost situation matches their actual decision making and behaviour in a real time sunk cost situation.

Decision making under risk and uncertainty**What should the rabbit do? Risk defusing in children's decision making****John Galsworthy Building Room JG3004****Oswald Huber**University of Fribourg
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In experiments on risky decision making with quasi-realistic scenarios instead of gambles, the majority of decision makers is usually not actively interested in information about probabilities. Often, decision makers search actively for a risk defusing operator (RDO) (an action to be performed in addition to a specific alternative and expected to decrease the risk). Examples in daily life are: insurance, vaccination. Up to now, no information is available about the role of RDOs when risky decisions are made by children. In our experiment we compared risky decision making of preschool children (4-5 years) with that of 7-8 year old children. We expect the 7-8 year olds to produce more RDOs than the 4-5 year olds. Nineteen preschool children and twenty children aged 7-8 years had to choose one out of two alternatives in three scenarios. In each scenario, one alternative was risky whereas the other one had certain positive and negative consequences. The scenarios were based on the stories of Pettersson and Findus, Pippi Longstocking and Winnie-the-Pooh. Explanation of the scenarios was assisted by pictures. As expected, the older children significantly more often came up with RDOs. Developmental reasons for the differences in RDO use between the age groups are discussed.

Decision making under risk and uncertainty

Attitude towards risk in willingness-to-pay-tasks: Bayesian modeling of cumulative prospect theory and a linear portfolio model

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Normative and descriptive decision models has often treated attitude towards risk indirectly as a part of the weighting of probabilities and outcomes of the uncertain prospect, and these models are also often applied to direct assessments of the willingness to pay for a prospect. Portfolio Theory is one exception that treats attitude towards risk directly by assuming that the perceived value of a prospect is a positive function of its expected value but a negative function of the variability of its outcomes. In view of the large literature on multiple-cue integration this simpler linear integration may seem a more plausible account in regard to estimates of a continuous variable, like willingness to pay, as compared to the subtle nonlinearities assumed by many decision theories. In an experiment with a willingness to pay task, people were instructed either to take an objective stance and assess the expected value of positive risky prospects or to take a subjective stance and assess their personal willingness to pay for the prospects (akin to its expected utility). The results showed that on average participants were quite accurate in their assessments of the objective expected value. Bayesian modeling revealed that in the willingness to pay (or utility) condition a Linear Portfolio Model, assuming that people directly discount the variability of outcomes from the expected value of the prospect, was a significantly better account of the data than a standard decision model (Cumulative Prospect Theory). This result suggests the need to chart the conditions under which standard decision models are applicable to willingness to pay assessments.

Decision making under risk and uncertainty

What does the owner think and feel? Query theory and subjective feelings of possession in the endowment effect

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After 30 years of extensive research, the endowment effect (Thaler, 1980) remains one of the most convincing empirical demonstrations of loss aversion in the domain of riskless choice (Novemsky & Kahneman, 2005). Recently, Weber and Johnson (2006) proposed Query Theory, a process-level model of preference construction, which explains the source of the effect in terms of dynamic and reason-based memory retrieval (Johnson, Haubl & Keinan, 2007). Accordingly, buyers are assumed to evaluate negative features of a potential purchase first, while sellers consider all value-increasing aspects about the item they wish to trade. The present investigation integrates the premises of Query Theory with the possible moderators and mediators of the subjective feelings of ownership. We conducted two experiments in which the classical endowment effect paradigm (with an incentive-compatible value elicitation method) was extended via a manipulation of the participants' feeling of control (use), physical contact, and familiarity with a target item. Crucially, both buyers and sellers listed their reasons for and against buying or selling respectively. We found a weak endowment effect, with no effect of the manipulation of physical contact. Critically, the order and number of queries did differ between buyers and sellers consistent with the Query Theory explanation of the disparity between willingness-to-pay and willingness-to-accept. Interestingly, a second experiment found no endowment effect but a strong effect of object-familiarity, with more knowledgeable participants valuing objects more highly. In this case, however, the listed thoughts did not map onto WTAs or WTPs, revealing limitations of the Query Theory in explaining value construction.

Decision making under risk and uncertainty**Finding happy sequences on the iPad****John Galsworthy Building Room JG3004****Daniel Smith**University of Mannheim
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We propose an empirical test of the model of utility under habituation and satiation by Baucells & Sarin (2010), utilizing a novel approach incorporating Apple iPhone smartphones and iPad tablets to provide unprecedented immediate feedback and control of a complex model to test subjects. Subjects participate by downloading to their iPhone or iPad an application that first walks them through the underlying model with a series of short educational videos as well as providing them with a fully interactive representation of the model that they can experiment with intuitively and in real time. The empirical tests then asks the participants to submit a sequence of deterministic consumption paths that optimize expected utility under lifetime uncertainty (given by a certain lifetime distribution previously demonstrated to them) while they receive feedback in the form of a simulation of realized utility corresponding to multiple random draws from the underlying distribution after every round. Our goal lies in empirically exploring the ways in which individuals perform a complex multi-period optimization task under various constraints and under uncertainty as well as obtaining new insights on how individuals form and apply heuristics in such situations, with a focus on the influence of experience versus description, immediate feedback and social comparisons all afforded by the novel implementation of the experiment.

Decision making under risk and uncertainty**Risk mitigation decisions for low probability-high consequence events****John Galsworthy Building Room JG3004****Ayse Onculer**

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Risk and time preferences, affective responses and social interactions all have strong impact on catastrophic risk management, both at the personal and societal level. A growing number of experimental work shows that individuals facing the same low probability-high consequence event do not necessarily respond in the same way. This study analyses individuals' responses to catastrophic risk. A large-scale survey consisting of 79 questions was administered in face-to-face interviews in an earthquake-prone region. Based on the survey results, we identify the factors influencing willingness-to-pay (WTP) measures for risk mitigation and insurance. The results show that the distribution of WTP for insurance and risk mitigation is bimodal, with approximately 40% of respondents reporting WTP=0. The main determinants for WTP are found to be income level, past experience and peer influence ($\chi^2 = 34.02, p < .001$). In addition, respondents were generally insensitive to the duration of stay in their homes, which indicates that myopic loss aversion is a fundamental cause of underinvestment in insurance and risk mitigation measures. Policy implications of these results are also discussed.

Decision making under risk and uncertainty

Emotion regulation strategies, need-for-arousal and ventursomeness differently predict risk-taking in the Hot And Cold Columbia Card Task

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Recent studies revealed that induction of emotional reappraisal leads to increased risk-taking, while induction of emotional suppression leads to decreased risk-taking. We explored the role of chronic use of these emotion regulation strategies in the Hot And Cold conditions of the Columbia Card Task (CCT). Additionally, individual differences in mood states, need-for-arousal, impulsivity and ventursomeness, were assessed psychometrically. Participants (N=119) were randomly assigned to the hot or cold CCT condition. One month before the experiment, participants filled in the Emotion Regulation Questionnaire, Need-for-arousal scale, and I7 scale. The PANAS was administered before the task to test for group differences in mood states. Risk-taking (average number of cards chosen) and the PANAS scores were not statistically different between groups. Greater reappraisal was significantly associated with greater risk-taking in both experimental conditions. Greater suppression was related to decreased risk-taking, but only in the cold task. Need-for-arousal and ventursomeness were significantly positively correlated with risk-taking, but only in the hot task. Impulsivity was unrelated to risk-taking in both tasks. A linear regression analysis of risk-taking was also carried out to control for potentially confounding effects of need-for-arousal and ventursomeness. The results show that chronic use of emotional suppression and reappraisal may influence risk-taking, especially when deliberative processes are strongly involved.

Decision making under risk and uncertainty

Simulated altitude and risk taking: Higher reflection effect in 3000m than on sea level

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The objective of the present research was to examine the impact of acute stress (induced by the exposure to oxygen-depleted air in a simulated high altitude environment) on decision making and risk taking. In particular, we tested the hypothesis that acute stress due to a subnormal oxygen concentration can cause an increased use of simplified cognitive strategies, exacerbating decisional biases. Specifically, we studied the effect of acute stress on the reflection effect, which refers to the tendency to opt for safe alternatives when decisions involve gains rather than losses. Twenty university students took part in three different sessions: a familiarization session and a control session both in normoxic condition simulating an altitude of 0 m o.s.l., and an experimental session in hypoxic condition simulating an altitude of 3,000 m o.s.l., with an oxygen-depletion of 14.1%. In all sessions, participants had to perform the same computer-based task, which involved a sequence of gambles. For each gamble, participants had to choose between two options of equal expected value. Some gambles involved gains whilst others losses. Physiological data showed that the experimental manipulation was effective in inducing an acute stress response. Preliminary results from the decision task showed that participants exhibited an exacerbated reflection effect in the experimental (hypoxic) session than in the control (normoxic) session. Consistent with dual-process approaches, these preliminary results suggest that individuals rely more on intuitive strategies when under stress.

Decision making under risk and uncertainty**Does risk-taking depend on the risk-return profile given?****John Galsworthy Building Room JG3004****Christian Ehm**

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We know from the literature that investors use certain heuristics when allocating their money. With this in mind, the question arises whether investors care about the risk at all. We analyse in a between-subjects-design whether investors' portfolio allocations result in the same risk-return-profile independent of the risky asset presented. We ask participants to allocate an investment amount between a risk-free asset and a risky asset. The assets given can be transferred into each other by combining them with the risk-free asset. We find that investors care about the risk in the sense that they know how much of their wealth should be invested with any risk at all, irrespective of the degree of risk. This amount can be predicted by their risk-attitude. When it comes to the degree of risk of the risky assets—the riskiness—they are less able to choose a completely rational or consistent allocation. It appears that the amount that should have any risk at all serves as an anchor. When judging the riskiness and adjusting the amount invested into the risky asset for the riskiness, investors show an insufficient adjustment. For investors with high financial literacy, the adjustment is much better. Our findings have important implications for the current debate on the communication of investment risks to investors and on the measurement of investors' risk attitude.

Decision making under risk and uncertainty**Memory-biased preferences: How accessibility affects judgments and decision-making prospects****John Galsworthy Building Room JG3004****Yvette Kiley**Kingston University
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In one experiment we studied the extent to which theories of judgment, decision-making and memory can predict people's preferences. Applying Prospect Theory and Support Theory to these data we find that (a) the weighting function required to model decisions with 'high-accessible' features in memory exhibits different properties to those required to model choices between monetary gambles and (b) the accessibility (Fox & Levav, 2000; Kahneman, 2003; Koriat, 2001) of events in memory affects choices between options, influencing participants' decision weights, but not their judgments of these options.

Decision making under risk and uncertainty**Decision making with the uncertain
probabilistic weighted average and the
theory of expertons****John Galsworthy Building Room JG3004****Jose Merigo**

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We present a new model for dealing with decision making under risk by considering subjective and objective information in the same formulation. We present the uncertain probabilistic weighted average (UPWA). Its main advantage is that it unifies the probability and the weighted average in the same formulation and considering the degree of importance that each case has in the analysis. Moreover, it is able to deal with uncertain environments represented in the form of interval numbers. We study some of its main properties and particular cases. We study the applicability of the UPWA and we see that it is very broad because all the previous studies that use the probability or the weighted average can be revised with this new approach. We focus on a multi-person decision making problem regarding the selection of strategies by using the theory of expertons.

Decision making under risk and uncertainty**Decision making with distance measures in a unified framework between the probability, the weighted average and the OWA operator****John Galsworthy Building Room JG3004****Jose Merigo**University of Barcelona
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We present a new decision making approach that uses the probability, the weighted average and the OWA operator in the same formulation. Thus, we are able to consider subjective and objective information and the attitudinal character of the decision maker. We introduce the induced generalized probabilistic ordered weighted averaging weighted averaging distance (IGPOWAWAD) operator. It provides a more general formulation that includes a wide range of particular cases including the probabilistic distance, the Minkowski distance, the generalized OWA distance (GOWAD), the generalized probabilistic weighted averaging distance (GPWAD), the generalized probabilistic OWA distance (GPOWAD) and many others. We further extend this approach by using quasi-arithmetic means obtaining the induced quasi-arithmetic POWAWAD (Quasi-IPOWAWAD) operator. We analyse the applicability of the IGPOWAWAD operator and we focus on a grouping process based on the use of a multi-person analysis. Thus, we introduce the multi-person IGPOWAWAD (MP-IGPOWAWAD) operator. Its main advantage is that it can assess the information of several persons in the analysis. We see that the use of different particular cases of the IGPOWAWAD operator permits to consider different scenarios that may occur and select the one that it is in closest accordance with our interests.

Decision making under risk and uncertainty

Stability in development across context in ambiguity aversion effects

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We report three studies that examine how robust the ambiguity aversion effect (Ellsberg, 1961) is across the trajectory of human development. In study 1, 6-18 year olds responded to Ellsberg urn problems varying urn magnitudes (with insights proposed by Pulford & Colman, 2008) and both one and two urn formats of the Ellsberg paradigm. Participants preferred the known-risk option significantly more in the two urn problems and in urns with a larger urn magnitude significantly more than urns with smaller urn magnitudes. We link these findings to preferences guided by variances in outcomes. Ambiguity aversion effects were stable across all ages. Study 2 and 3 attempted to elicit ambiguity-seeking behaviour using the two urn Ellsberg structure from study 1 but with vignettes that had a real-world context. Children aged 8-9 years, a young adolescent group aged 12-13 years and adults took part (N=180). We created one vignette each in the context of dental hygiene, diet, exercise, road safety and bike safety behaviour. Participants were significantly ambiguity averse across all contexts and effects were stable across all ages. Study 3 further examined ambiguity by manipulating the probabilities for the known-risk options using the same vignettes from study 2. The probability of a desired action taking place was altered to have a 25% chance of occurring rather than a 50% chance. Significant ambiguity aversion was still manifest and effects were stable across all ages. Robust ambiguity effects in younger children demonstrate competency in assessing ambiguous information in both abstract and real world contexts and under real and hypothetical decision making. Safety aiding behaviour to deal with our uncertain environment takes shape early in development.

Decision making under risk and uncertainty

Why the glass half full is not always the glass half empty: Risk framing, context and representation in a developmental framework

John Galsworthy Building Room JG3004

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We report two studies with an aim of examining framing effects in risky decision making within a developmental framework. In study 1, we created 5 pairs of normatively equivalent vignettes using real world contexts that carried over the salient characteristics of risky choice from the 'cups task' developed by Levin and Hart (2003). In the gain frame the safe option always ensured one prize with the risky option offering a 50% chance to win two prizes and a 50% chance to win nothing. In the loss frame the safe option always ensured the loss of one prize with the risky option offering a 50% chance to lose two prizes and a 50% chance to lose nothing. One vignette pair (each framed as a gain and equivalently redescribed as a loss) formed a dental hygiene, diet, exercise, road and bike safety behaviour situation in which hypothetical returns varied as a function of context. We used a within participant design and recruited approximately thirty children aged 8-9 years, a young adolescent group aged 12-13 years and adults. We found a significant standard framing effect in the diet vignette and a significant reverse framing effect in the exercise vignette and non-significant framing effects across the remaining contexts. Study 2 further examined these framing effects in the same manner as above. However the probability of a risk paying off in the risky option was altered to have a 33% chance of a gain or loss and a 67% chance of nothing (the safe option was matched for EV). The significant framing and non-significant framing effects from study 1 were replicated. All effects were stable across ages. The axiom of invariance holds under some contexts in which processing allows for canonical representations which are not a function of age.

Decision making under risk and uncertainty

Choosing the choice rule

John Galsworthy Building Room JG3004

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Empirical evidence suggests that real-life decision makers rarely maximize their expected utility, but often use heuristic decision rules to make their choices. As there is a huge variety of heuristics available, each different in necessary decision effort and outcome quality, the question arises which heuristic would be chosen in which decision situation. As the established effort-accuracy framework is not able to explain recent empirical findings, I developed a new effort-certainty model to reveal which decision characteristics affect strategy choice. The strategy selection process is modeled as a boundedly rational trade-off relationship between the perceived certainty about a decision environment and the processing effort that would occur if a specific strategy would be applied to it. Hence, only strategies with positive perceived net utilities ($= \text{utility} - \text{effort}$) are likely to be applied on the underlying decision problem. Moreover, the used heuristics are expected to differ across individuals and products, each described by important socio-economic characteristics. Empirical evidence is collected by conducting an incentivized 2-stage Mouselab experiment. The resulting clickstream data is analysed with a decision tracing algorithm, which is capable of determining one out of thirteen decision strategies that was actually used. Decision Effort is measured with Payne's elementary information processes (EIPs) whereas perceived certainty is captured by observing the relative share of looked-up information elements. An econometric analysis of the actually chosen strategies with respect to the above mentioned decision characteristics completes this study.

Decision making under risk and uncertainty**A recency weighting approach to predict decisions from experience****John Galsworthy Building Room JG3004****Manel Baucells**Universitat Pompeu Fabra
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We extend a model originally designed to estimate reference points in a financial domain (Baucells et al., 2010) to make predictions on how subjects evaluate decisions from experience (Erev, et al., 2010). We use the sampling task: Participants chose between a risky and a safe option, and learn about these options by sampling sequentially from them. We propose a predictive model to estimate how subjects evaluate risky options known through sampling. The predictive model is a modification of a recency weighting formula, successfully applied to estimate reference-point formation. We apply the model to predict choices in the Technion Prediction Tournament's data (TPT). The model assumes that observed outcomes are transformed into prospect theory values through a non-linear function that exhibits loss aversion and diminishing sensitivity. Each value is then weighted according to the position in the sequence of outcomes: Recent outcomes receive higher weight than less recent ones. We fitted a three-parameter model to the observed choices in 60 problems of TPT's estimation set. The parameters were varied to maximize the rate of correct predictions. The fitted model achieved a rate of 84.45% of correct predictions, while the top four models achieved rates around 95%. After estimating the model parameters, we generated predictions for the competition set. The model generalized surprisingly well, achieving a rate of correct predictions of 84.98%, outperforming the winner of the competition by 2%. We extend an existing model of reference point formation to account for decisions from experience. Results suggest that the evaluation of risky alternatives follows a process similar to that of formation of reference points.

Making Decisions about Chance Events: Age, Imagination and Control

Clattern Lecture Theatre and Room JG0001*

09:00 - 10:00

Liz Robinson

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Both 5-year-olds and adults treat chance events differently according to whether or not the outcome has already occurred. I shall show how imagination and feelings of control influence both children's and adults' handling of chance events, but in different ways. I shall discuss these findings within the framework of Heath and Tversky's (1991) competence hypothesis, according to which people prefer not to guess about something they could know in principle, such as a chance event that has already occurred, but to guess instead when they know all that could be known, such as a chance outcome yet to be determined.

Emotion and DM

Life, death and hedonic adaptation

John Galsworthy Building Room JG2007

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The death penalty is considered excessive; a 'cruel and unusual', 'inhuman and degrading' punishment which ought to be reserved for the 'worst of the worst'. Life imprisonment without parole is considered a 'living death'. We measured the current adaptations, as well as forecasted and recollected experiences of prisoners who were given the death penalty in Trinidad and Tobago. The responses of death row prisoners were compared with prisoners who were on death row but had their sentences commuted to life imprisonment without parole 6 months before data collection, and those who were on death row but had their sentences commuted 10 years earlier. Prisoners reported their current feelings and were asked to forecast their future feelings as well as recollect their past feelings. Data was collected via individual interviews and prison records. Our findings show patterns of adaptation as well as errors in forecasts and recollections. For instance, the COMMUTED-6 MONTHS group did not feel more positive than the DEATH ROW group. The COMMUTED-10 YEARS group felt more positive than the COMMUTED-6 MONTHS group. The COMMUTED-6 MONTHS group's forecasted feelings were more negative than how the COMMUTE-10 YEARS group actually felt. The COMMUTED-10 YEARS group recollected feeling more positive than the COMMUTED-6 MONTHS group actually felt. We offer potential explanations for these findings. Our study contributes to work on hedonic adaptation, and that showing people are not good at forecasting or recollecting their psychological reactions to life events. We make recommendations for the development of sentencing policy, as well as prison policy for death row prisoners.

Emotion and DM

A face you can trust? Facial physiognomy affects strategic behavior in trust games

John Galsworthy Building Room JG2007**Constantin Rezlescu**University College London
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Many human interactions are built on trust, so widespread confidence in first impressions generally favors individuals with trustworthy-looking faces. However, few studies have explicitly examined the contribution of stable facial features (facial dimensions which cannot vary within the same individual, barring changes by means of plastic surgery) to trust-based decisions, or how these cues are integrated with information about past behavior. Stable facial features are particularly interesting because they meet a necessary requirement for any potential diagnostic cues to trustworthiness: they are impossible to fake. Using highly controlled stimuli, we show that stable facial features associated with the appearance of trustworthiness attract higher investments in trust games. The facial trustworthiness premium is large for decisions based solely on faces (Experiment 1), and remains significant when reputational information is also available (Experiment 2). These results indicate that cooperation is affected not only by controllable appearance cues (e.g., facial expressions), but also by those that are impossible to fake (e.g., facial configuration).

Emotion and DM

Decomposing trust: An ambiguity versus a risky setting

John Galsworthy Building Room JG2007

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We study the impact of risk and ambiguity on the willingness to trust. We propose that trusting decisions mostly take place under ambiguity, where the objective probabilities of trustworthy behavior of the trustees are not known. This stands in contrast with the link made in prior literature, which relates trusting decisions to individual risk preferences, measured under objectively known probabilities. Previous behavioral and neuroimaging studies, however, prevalently find no correlation between risk and ambiguity preferences, and show that different brain regions have been implicated when decisions take place under risk and under ambiguity. In our experimental study, we decompose the willingness to trust in decisions under risk and under ambiguity. In one treatment, the decision to trust is a risky bet, where the trustor knows the objective probability of a trustworthy response of the trustee. In another treatment, the trustor plays the classic trust game under ambiguity. Our main results show that the source of uncertainty has to be accounted for when explaining trust. We also find that social preferences play a role in both uncertainty contexts, but their interaction with risk preferences explains trusting behavior only in the risky context. At the same time, trust in the ambiguous context is shaped by the individual's ambiguity attitude. Finally, trustors send significantly more to the trustees in the risky trust game setting than in the ambiguous trust game setting, suggesting that ambiguity inhibits efficiency in trusting exchanges.

Emotion and DM

Emotions and risky decision-making: Evidence from neuroimaging and neuropsychiatry

John Galsworthy Building Room JG2007

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In the present study we aimed to broaden our knowledge of the relationship between emotions and individual decision making by examining brain processes in normal subjects, as well as looking at decision-making in clinical populations. To answer the first question we recorded electro-magnetic brain activity via MEG while subjects performed a gambling task. This allowed us to explore how the brain processes both feedback-based and agency-based regret. Our results showed that differential activities between these two aspects of regret occur early after the onset of the obtained outcome (that is, between 190 msec and 305 msec). Moreover, the left and right side of the brain appear to be differently involved in these aspects of regret. Agency-regret activates more strongly the left anterior region; feedback-regret activates to a larger extent the right anterior and posterior regions. To answer the second question we used a clinical population of patients with anxiety disorders, comparing behavior to matched normal controls. Data demonstrate altered risky decision-making between the groups. Specifically, patients are more risk-averse than controls, and they become riskier only after losses. Controls were more emotionally affected by losses than patients. These findings demonstrate that pessimistic valuation of future events and the hyper-sensitivity to potential dangers affect choices. Together these two studies extend our knowledge as to the role of emotions in decision making.

Monday

Tuesday

Wednesday

Thursday

Emotion and DM

Intuitive politicians or intuitive penitents? Regret aversion, accountability and justification in the decoy effect

John Galsworthy Building Room JG2007

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Several studies have shown that the decoy (or attraction) effect is amplified when participants anticipate having to justify their choices to an external audience. We report here two experiments examining the impact on the decoy effect of making future regret possibilities salient, a manipulation that has been shown in several earlier studies to generate pressure to examine and improve one's decision process. Experiment 1 showed that making regret salient eliminated the decoy effect in a personal preference task. Experiment 2 replicated this finding for a different personal preference task and for a prediction task. It also replicated previous findings that external accountability demands exacerbated the decoy effect. We interpret both effects in terms of justification demands, but to different audiences. Seeking justification to others (responding to accountability demands) exacerbated the decoy effect; seeking justification to oneself (responding to regret salience) eliminated it. The earlier 'intuitive politician' metaphor describes responses to demands for external justification. We propose here an alternative, the 'intuitive penitent', driven by thoughts of possible later regret to justify her choices to herself. These justification ideas both contribute to a theoretical account of the decoy effect and offer an effective debiasing procedure for it.

Emotion and DM**The effect of state shame and guilt on risky decision-making behaviour.****John Galsworthy Building Room JG2007****Emily Hancock**University of Reading
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Affective state prior to and during decision-making plays an important role in determining the level of risk people are willing to take. However few studies have taken an emotion-specific approach to exploring this. This study explored the role of two negative emotions, shame and guilt, on risky decision-making behaviour. Fifty-four undergraduate psychology students were assigned to either a state shame induction, state guilt induction or a control group, they then took part in a gambling task, designed to assess risky decision-making (the Iowa Gambling Task; Bechara, et al., 1994). The results showed that state guilt induction significantly increased risky decision-making in comparison to the control group, however the shame induction had no effect on level of risky decision-making compared to controls. These findings provide support for the key role played by current affective states in risky decision-making. They also highlight the importance of adopting an emotion-specific approach to this research area, as two arguably similar emotions were found to have very different effects on risky decision-making behaviour.

Social JDM III**The effects of social exclusion on selective exposure****John Galsworthy Building Room JG2008****Tobias Greitemeyer**University of Innsbruck
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After making a preliminary decision, a balanced search for information that is consistent and inconsistent with one's decision is associated with effective decision-making. However, searching for information in a balanced way requires the willingness to face the negative implications of searching for preference-inconsistent (relative to preference-consistent) information. Social exclusion has been shown to be associated with a decreased willingness to stifle one's own self-serving impulses. Therefore, we expected socially excluded (relative to included or control) participants to be less willing to confront oneself with the unappealing qualities of preference-inconsistent information and more willing to seek for the appealing qualities of preference-consistent information. The hypothesis was supported in two studies, using different manipulations of social exclusion.

Social JDM III**Social comparison in decisions for others:
Considering multiple gift recipients leads
to unique but less-liked gifts****John Galsworthy Building Room JG2008****Mary Steffel**University of Florida, USA
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Choosing gifts that recipients are sure to like is a challenge, and sometimes, this challenge is compounded by having to choose gifts for multiple recipients at once. Having multiple recipients in mind not only means that more gifts are needed, but it may also change the types of gifts that are given. This research examines how the social context in which a gift is selected can influence gift choices. We find that, when people select gifts for multiple recipients, they focus on what differentiates the recipients instead of on what each would like best. This leads givers to pass up gifts that they believe would be better liked for gifts that fit unique aspects of each recipient's preferences, even when they know that recipients are unlikely to compare gifts. The tendency to sacrifice liking for uniqueness arises because givers are motivated to convey an understanding of the recipients' unique identities and not simply because givers perceive the recipients differently when they are presented together versus separately. Consistent with this, this tendency is exacerbated the more motivated givers are to put time and thought into their gift selections, such as when they are selecting gifts for close friends. Focusing givers' attention on recipient liking, by prompting them to predict which gifts recipients would choose for themselves, can help givers select better liked gifts.

Social JDM III

The impact of depression on self-other discrepancies in decision making

John Galsworthy Building Room JG2008

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Published research on self-other discrepancies in decision making is lacking but the topic is gaining momentum. We wanted to contribute to this research by investigating how depressed (n=108) and non-depressed individuals (n=108) make decisions for themselves and predict others' decisions. Participants read three scenarios (i.e., a social, a medical, and a financial scenario) describing a risky and a safe option. Afterwards, they indicated which option they or another person would choose. Our study showed that non-depressed participants predicted that others would make riskier decisions than themselves. In contrast, depressed participants predicted that others would make similar decisions to themselves. Depressed participants, therefore, showed no self-other discrepancies (i.e., no bias). We provide a theoretical explanation of these discrepancies and conclude that our results could have important implications for research on decision making and for medical practice.

Social JDM III

Understanding emotions in advice taking

John Galsworthy Building Room JG2008

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Even though emotions have been shown to play a pivotal role in decision making, the theoretical and empirical research concerning the influence of emotions on advice taking is scarce. Unlike decision making in the form it is usually studied, advice taking is an interpersonal process. Therefore, the findings on emotion influences in decision making may not be generalizable to advice taking situations. We claim that in order to fully grasp the role of emotions in advice taking, the emotion dimensions valence, focus, and context are essential. Five experiments with different emotion inductions and different dependent measures confirm that emotion effects on advice taking cannot be simply explained by one emotion dimension. While decision makers experiencing the positive other-focused emotion gratitude take more advice if the emotion context is endogenous instead of exogenous (i.e. if the emotion is aimed at the advisor instead of aimed at another person), decision makers experiencing the negative other-focused emotion anger take less advice if the emotion context is endogenous as opposed to exogenous (Experiments 1 and 2). This cannot be explained by a valence effect: decision makers experiencing the positive self-focused emotion pride take less advice if the emotion context is endogenous instead of exogenous (Experiment 3). Also, experiencing the negative self-focused emotion shame motivates more advice-taking if the emotion context is endogenous rather than exogenous (Experiments 4 and 5). Together, these findings indicate that a thorough understanding of emotion dimensions is necessary to fully understand emotion effects on advice taking.

Social JDM III

What's important depends upon how I see us: The influence of self-construal on self-choice versus advice-giving

John Galsworthy Building Room JG2008

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People are often faced with the task of making consumer choices for others, such as making product recommendations. However, although a good deal of marketing research has examined choices for the self, we know relatively little about the ways individuals consider product features when choosing for other people. Past research (Kray & Gonzalez 1999; Kray 2000) has shown that decision-makers assign differing attribute weights in choice decisions for the self versus for others. We extend this model to a marketing context and hypothesize that self-construal influences this attribute weighting process by prompting decision-makers to engage in either self-other merging or increased perspective-taking when making choices for others; the former prediction suggests that participants with a collective self-construal should be more likely to weight attributes in choices for the self in the same manner as choices for close others, while the latter prediction suggests an enhancement of self/other differences in weighting for collectivist participants. Our results support the perspective-taking hypothesis - respondents primed with a collective self-construal were more likely to select an option that prioritized one attribute when choosing for others, and an option that facilitated tradeoffs when choosing for the self. In contrast, respondents primed with an individual self-construal did not choose significantly differently when asked to decide for the self versus for others. Future directions and implications of these findings for decision theory are discussed.

Social JDM III

When a good outcome for another person is a poor comparison for oneself: On the role of agency in resolving conflicted social preferences

John Galsworthy Building Room JG2008

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Imagine the following scenario. After buying a new camera for \$500, you find out that a colleague of yours had also bought the same camera. You inquire her about the price she had paid. Would you rather find out that she had paid the same amount as you had, or less? You might feel annoyed should you find out that she had gotten a better deal than you had. Yet, you might feel happy on her behalf, knowing that she had paid a low price. Settings of this sort confront decision makers with a conflict between two social motives. One is the tendency to avoid unfavorable comparisons and to prefer equal outcomes. The second is the tendency to care about others' well-being and seek the 'greater good for all'. We argue that decision makers' compromise between these conflicting motives depends on their role in the setting. In particular, decision-makers' involvement (or agency) in creating their own and others' outcomes moderates the relative weight they assign to different social motives, giving rise to different social preferences. Specifically, decision makers who are not involved in creating the outcomes (low agency) should be attuned to social comparisons and more concerned with inequality. In contrast, decision-makers who are involved in creating the outcomes (high agency) should be less concerned with inferior social comparisons and should care more about the welfare of others. We tested our hypothesis in three studies. As expected, agency increased judges' tendency to select the better outcome for the other. The effects of agency are discussed in connection to inequality aversion, social comparison, prosocial behavior, and preference construction.

Consumer choice

Affective forecasts and consumer decisions: Exploring moderating effects of product type and belief in adaptation

John Galsworthy Building Room JG2009

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Affective forecasts are expectations about future emotions, e.g., enjoying a new apartment. Empirical evidence suggests that consumers sometimes base their decisions on affective forecasts and sometimes do not. One plausible moderator is the type of product: Emotions may be more important for hedonic products than for utilitarian products. Another plausible moderator is the lay theory consumers hold about product-related emotions: A stronger belief in adaption may make anticipated emotions less influential. The present research examined the relevance of affective forecasts for consumer decisions, and the moderating role of product type and belief in adaptation. In study 1, 64 participants read scenarios about desiring either hedonic or utilitarian products. They made affective forecasts about owning the products and rated purchase intentions. Purchase intentions significantly correlated with affective forecasts, with no moderating role of product type. In study 2, 160 participants read scenarios about desiring either a hedonic or a utilitarian product, but needing a loan for it. They made affective forecasts about owning the product. Forecasts were made either for a single time point or for two time points to cue adaptation. Finally, participants rated loan intention. Loan intention significantly correlated with affective forecasts. Beliefs about adaptation were a significant moderator: Making two forecasts resulted in a weaker correlation. As in study 1, product type had no moderating role. Results suggest that consumer decisions are related to affective forecasts, but less so when a belief in adaptation is cued. This has implications for marketing and consumer counselling.

Consumer choice**Gotta catch them all: the role of set-completion in consumer decisions****John Galsworthy Building Room JG2009****Ellen Evers**TIBER / Tilburg University
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A variety of different products are produced in sets or series. Anecdotes and interviews suggest that, for the majority of people, purchasing decisions are guided by these sets. Most notably, people report a strong, sometimes even overwhelming urge to buy items that complete these sets. In 4 different experiments we aimed to first show that people have a preference for set-completion. The first two experiments reveal that both preference, as well as willingness to pay are influenced by whether the same item serves as a set-completing item or not. It was expected that the underlying process of the set-completion effect is a shift in reference-point that focuses attention on items a person misses instead of the items a person has. Furthermore, it was expected that the resulting state of discomfort from focusing on the gaps in ones set, would result in higher wanting but not higher liking. Experiment 3 and 4 tested the reference-point shift by manipulating focus on missing items (Experiment 3) and measuring focus on missing items (Experiment 4). The data revealed that a focus on the missing items mediates set-completing behavior. These experiments show that perception of items as parts of a set has a substantive effect on consumer behavior, and behavior in general. Our findings suggest that, when perceived as a part of a set, purchasing decisions are not necessarily based on how much a product is liked but rather on how much it contributes towards set-completion.

Consumer choice**Advertising energy saving programs:
The potential environmental cost of
emphasizing monetary savings****John Galsworthy Building Room JG2009****Wandi Bruine De Bruin**Carnegie Mellon University
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Previous research has found that providing monetary rewards for actions that people would have taken anyway sometimes undermines their intrinsic motivation. Saving energy may be an intrinsically motivated behavior that inherently also rewards people with monetary savings. Here, we examine whether highlighting these monetary rewards helps or hurts people's willingness to save energy. We examined participants' willingness to enroll in energy saving programs that emphasized either (a) electric bill reduction, (b) environmental impact reduction, or (c) both. They provided reasons for (not) enrolling, coded for mentioning environmental or monetary motivations. We found that highlighting monetary savings, either alone or in addition to environmental savings, reduced respondents' willingness to enroll in energy-savings programs. Consistent with the overjustification effect, fewer participants provided environmental reasons for their enrollment decisions when programs emphasized monetary savings, even when environmental savings were emphasized. Conversely, participants mainly provided monetary reasons about enrolling even if there were not emphasized in the energy-savings programs

Consumer choice**The role of decisions from description and decisions from experience in online consumer choice****John Galsworthy Building Room JG2009****Dirk Wulff**University of Basel
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Online user ratings have become an important source of information to consumers. Beyond getting technical details about a product, online ratings from others provide a source of surrogate experience allowing consumers to make experienced-based decisions. However, very little is known about how consumers utilize online ratings. Nor it is known how previous research on Decision from Description (DfD) and Decision from Experience (DfE) generalizes to this new consumer domain. To address this gap in the literature, we applied two prominent experimental formats in the decision-making literature 'DfD and DfE' on consumer ratings similar to those on Amazon.com or the Internet Movie Database (IMDB). In DfD, decisions are made on the basis of a descriptive summary of ratings, whereas in DfE ratings are sampled in a self-directed search. We found that individuals generally choose the product with the higher mean star rating. However the strength of this tendency was moderated by the way the information was presented and by individual differences in information search strategies. Participants who switched frequently between options in DfE, irrespective of their sample size, were less likely to choose the option with the higher mean star ranking. These findings parallel experimental effects that have been shown on gambles (Hertwig et al., 2004, Hills & Hertwig, 2010). Our results also indicate that the effect of switching on experienced-based decisions vanishes when individuals first make decisions based on description. This study not only transfers effects of the DfE literature to a domain of everyday life and also holds important practical implications for online retailers.

Consumer choice

The value of nostalgic products

John Galsworthy Building Room JG2009

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Nostalgia is a highly relatable emotion that nearly everyone experiences. As a result, marketers often rely on nostalgic cues in order to facilitate familiarity and comfort, thus increasing the appeal of their products. While previous research has studied the effect of nostalgic product appeals, the current study seeks to explore the possibility that recalling a nostalgic experience can change the way an individual perceives an otherwise unrelated product. In this study, 135 participants were asked to recall and describe either a nostalgic experience, a positive experience, or an ordinary experience. Afterwards, they were given pictures and basic descriptions of a watch and cellular phone. For each of these items, participants filled out an 8-item appealingness scale, and answered an open-ended question regarding how much they would be willing to pay for the items. The results showed that recall of a nostalgic event did not significantly alter appealingness ratings for either of the items, but participants in the nostalgic condition were willing to pay significantly more money for the cellular phone compared to participants in the positive or ordinary conditions. One possible interpretation of these results is that individuals more readily associate nostalgic memories with social products. The perceived value of social products is greater, because they elicit reminders and opportunities for maintaining social bonds. It appears that reliving nostalgic memories can change one's perception of products, and this change in perception makes otherwise identical products different.

Consumer choice

Two investigations of how numeric ability and experience compensate for age when making consumer choices

John Galsworthy Building Room JG2009

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In the current economic environment, it is becoming ever more important that individuals are able to use numbers (e.g. when comparing prices) for making financial choices. Two studies examined the impact of aging on older adult's consumer decision making. The first experiment explored young ($N = 39$) and older adults' ($N = 35$) ability to identify which, from a number of utility supplier plans was the cheapest. A table designed to simulate material provided by energy providers was presented to participants. Participants had to utilise this table in order to answer a number of factual and inferential questions. Analysis revealed no age difference in decision making ability for factual or inferential questions $F(2, 72) = .19, p > .05$. Results indicated that older adult's applied decision making was most significantly predicted by fluid and numeric abilities. A second study sought to replicate and extend this research by investigating how older consumers performed when making applied decisions in a less familiar arena. Young ($N = 65$) and old ($N = 63$) participants were presented with two tables, one; costs for utility suppliers and two; costs for mobile phone companies. Factual and inferential questions for each domain were presented to participants. The data revealed no significant interaction between age and question type or between age and topic. Again, further analysis suggested that fluid intelligence significantly predicted older adult's aptitude for both question types across domains. Numeracy predicted older adult's ability to answer inferential questions when selecting a mobile phone company. These studies provide converging evidence that numeric ability and fluid intelligence are crucial to older adults applied decision making.

Judgement of uncertainties and values I

Are bets with the odds 3.1 more likely than bets with the odds 21/10? How odds in sports betting are perceived as probabilistic information

John Galsworthy Building Room JG2010

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Chance, risk and uncertainty are expressed in various formats for decision-makers in everyday-life. In sports betting the probabilities for different outcomes are reflected by odds, which also determine the amount that bets will return if being successful. In Europe odds are expressed in two main formats: decimals and fractions. For research on judgment under uncertainty, consumers of betting products (henceforth punters) are an ideal group to study as they use probabilistic information and risk their own money when making decisions (leading to incentives to avoid judgmental biases). The paper aims to empirically investigate the following questions: Do punters realistically perceive odds? Do different formats of odds shape their probability evaluations of future outcome? The data concern responses to a web-based questionnaire by 68 punters who evaluated two randomly presented sets of 10 bets with different odds. The sets were identical except for the format: set A (B) had odds expressed as decimals (fractions). For each bet, the participants were asked to imagine 100 such bets, estimate how many that would come true, report their confidence and give an interval. Consistent with prior research, the results indicate that the format in which probabilistic information is presented influences the perceptions of odds. Participants underestimated bets with decimal odds and overestimated bets with fraction odds. Greater confidence was also associated with the decimal format.

Judgement of uncertainties and values I

Expectations of random sequences: Normative, heuristic or both?

John Galsworthy Building Room JG2010

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When tossing a coin with .5 chance of landing heads (H) and .5 chance of landing tails (T) five times in a row, non-random-looking sequences, such as 5 heads in a row - HHHHH - are perceived as less likely to occur than a more random looking string such as HTHHT. Of course, all strings have an equal probability of occurring. In the past, these biases have been explained in terms of maladaptive application of heuristics like representativeness or complexity. Recently, Hahn & Warren (2009) have argued that these biases—however they are instantiated—may reflect the statistical properties of repeated random events. Some non-random-looking strings, like HHHHH, cluster in finite sequences of binary outcomes, so one would expect to wait longer to see the string occur, and would be less likely to see at least one occurrence of HHHHH than, say, HTHHT, in any finite sequence. We tested the logical extension of these predictions empirically. In Experiment 1, 102 participants estimated the probability of all possible strings of 4 (e.g., HTHH) or 5 (e.g., HHTHH) items occurring in a set of 20 or 30 coin tosses. In Experiment 2, 62 participants estimated the probability of all possible strings of 6 items occurring in a set of 40 coin tosses. Results were consistent with existing findings: Non-random-looking strings were judged significantly less likely to occur than more representatively random strings. We also confirmed that participants' estimates were well explained by use of representativeness and complexity heuristics. However, with the exception of complete strings of the same outcome (like HHHHH), the relationship between participants' probability-of-occurrence estimates, and the actual probability of occurrence in the set of tosses was non-significant and negative.

Judgement of uncertainties and values I

Incidental and integral affect in the construction of prices

John Galsworthy Building Room JG2010

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Two types of affect influence judgment and decision making: incidental affect (affect unrelated to a judgment or decision such as a mood) and integral affect (affect that is part of the perceiver's internal representation of the option). These two lines of research have seldom crossed so that knowledge concerning their combined effects is largely missing. We performed four experiments where positive and negative mood participants set prices (willingness to pay for consumer goods, investment in stocks, charitable donations) that were either affect-rich or affect-poor. Across the studies we find that incidental mood has a larger effect for affect-poor goods.

Judgement of uncertainties and values I

On the fixed and relative nature of perceived randomness

John Galsworthy Building Room JG2010

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The present work extends Ayton and Fischer's (2004) study on the facets of subjective randomness by: (i) mapping a new list of psychologically meaningful generators of binary random sequences, and (ii) examining the perception of these generators. The mapping exposed four psychologically meaningful categories, named: 1) Human skilled performance 2), Traits and preferences, 3) Chance mechanisms, and 4) Periods and processes. Examining the perception of these categories revealed three phenomena: (i) 'the process effect' - any process examined on its own is perceived as being directly proportional to the underlying alternation rates the higher the alternation rate, the more likely is the sequence to be perceived as reflecting the examined process. (ii) The 'pattern permanence principle' relating to 'chance mechanisms' and 'periods and processes'. These categories are perceived as having a fixed association (a direct relationship for the former, and an inverse relationship for the latter) with the underlying pattern of alternation rates. (iii) The 'relativity principle' applies to the two categories of 'human skilled performance and 'traits and preferences'. These categories are perceived as having a relative association with the alternation rates of the sequences that depends on the combination of the examined categories. Each of these categories may be perceived as being directly proportional to the alternation rates when contrasted with a certain category or set of categories, yet be perceived as being indirectly proportional when contrasted within a different set of categories.

Judgement of uncertainties and values le

Deep risk and time: Adaptive estimation of preferences

John Galsworthy Building Room JG2010

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We develop a methodology, DEEP (Dynamic Experiments for Estimating Preferences), for the measurement of the parameters of cumulative prospect theory and time discounting models based on tools from the preference measurement literature. These parameters are typically elicited by presenting decision makers with a series of choices between hypothetical alternatives, gambles or delayed payments. We present a method for adaptively designing the sets of hypothetical choices presented to decision makers, and a method for estimating the preference function parameters which capture interdependence across decision makers as well as response error. The method ensures that each question is the most informative given the prior choices made by the decision-maker.

We test our method in several studies. One observation common across studies is that the procedure is relatively quick, taking a mean of less than 5 minutes for estimating both time and risk preferences. The first study compares the fit of our method against a standard elicitation using the most common methodology, termed titrators by psychologists and price lists by economists. We test both methods' ability to predict equivalence judgments. We then apply our questionnaire design and estimation methods to a study of the characteristics of homeowners who owe more on their mortgage than the current value of the underlying real estate asset. In both studies, DEEP produces estimates more quickly and that have higher predictive validity.

Given the growing interest in relating behavioral decision theories to real world empirical phenomena in financial decision making and health decision making, we think DEEP is broadly applicable.

Judgement of uncertainties and values I**Probability versus confirmation judgments: A comparison in accuracy and test-retest reliability****John Galsworthy Building Room JG2010****Katya Tentori**
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In the last fifty years, many studies have pointed out that human probabilistic reasoning is often far from optimal and yields typical patterns of biased judgment (see Gilovich, Griffin, & Kahneman, 2002). Claims have been made, however, that such results are at odds with people's good performance in real-life situations, where uncertainty is the rule (Evans & Over, 1996). We propose a novel approach to bridge this gap. In dealing with everyday uncertainty, we suggest, people may more effectively rely on detecting relations of inductive confirmation (i.e., the net impact of new evidence on the credibility of hypotheses of concern) than on computing values of posterior probability (i.e., the overall credibility of hypotheses as updated on all given evidence). As a test of our proposal, we compared the accuracy and the reliability of confirmation vs. probability judgments in a test-retest experiment. In line with our prediction we found higher accuracy and reliability for confirmation rather than probability judgments in otherwise controlled conditions. Moreover, the errors in the probability judgments were larger than those in confirmation judgments, and followed more systematic patterns. Apparently, people can properly estimate the net impact of given evidence on a hypothesis even when their corresponding probability judgments are defective. This provides support to our suggestion that judgments of confirmation are psychologically prior than direct assessments of chance.

Eye tracking JDM**Contextual and individual variability
in risky choice: Evidence for multiple
strategies including overall probability
of winning heuristic****John Galsworthy Building Room JG2007****Vinod Venkatraman**

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It is well known that decision making differs across contexts and across individuals. Different individuals will often respond differently to the same problem. The same individual will respond differently to what appear to be subtle changes in problem descriptions and environment. An ongoing debate in decision research is how to account for these individual and contextual differences. One perspective argues for a single decision strategy, with the observed differences in behavior explained in terms of differences in parameter values. An alternative perspective is the multiple strategy view which argues that individuals have access to a set of heuristic strategies that will be used contingently as a function of problem type, individual's prior experience, and individual differences in capabilities and tendencies. Here, we present data from an eye-tracking experiment, that seeks to address the single versus multiple strategy debate. When presented with a series of decisions involving complex multi-outcome mixed gambles, individuals demonstrated variability in choice preferences as a function of both problem type and individual variability that conflict with predictions of most models including cumulative prospect theory and priority heuristic. This variability was also associated with systematic differences in information acquisition and processing. Specifically, we found increased response times, increased information acquisition and differences in the sequence of information acquisition when individuals shifted away from their preferred strategy on a given trial. Together, these results provide converging evidence in favor of the multiple strategy perspective in risky choice.

Eye tracking JDM**Exploring the links between eye movements and choice behaviour: A process-level investigation of choice anomalies in risky choice****John Galsworthy Building Room JG2007****Christoph Ungemach**Department of Psychology, University of Warwick
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We present two experiments addressing the shortcoming of eye tracking studies examining decision making under risk. The first experiment investigates eye movement patterns in choice tasks known to produce choice paradoxes in decision making under risk, such as violations of dominance, common-ratio effects, common-consequence effects, branch-splitting effects and violations of transitivity. By including lotteries with more than two branches and using real incentives we provide a more comprehensive evaluation of risky choice models on the basis of both eye movement patterns and choice behaviour. We observe proportions of choice anomalies similar to the ones reported in the literature with high proportions of common-consequence and common-ratio effects. The observed eye movement patterns indicate systematic transitions in line with repeated examination of trade-offs between probabilities and amounts within lottery branches. More importantly, we find links between differences in transition patterns and choice behaviour for common choice anomalies. This offers new ways of understanding choice anomalies in an information processing framework. In a second experiment we investigated whether differences in the display format can affect eye movement patterns as well as choice behaviour. The results provide explanations for different results reported in the literature and inform the design of future experiments investigating eye movements in risky choice tasks.

Eye tracking JDM

Eye tracking of risky choices

John Galsworthy Building Room JG2007

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There are many models of risky choice, all of which explain much of the risky choice data. However, the assumptions they make about processing vary widely--from repeated micro-plays of a gamble driving a random walk (decision field theory) to symbolic calculation of something like expected value (cumulative prospect theory) to accumulators driven by binary comparison of randomly sampled attribute values (decision by sampling) to trade offs of probability and outcome differences (perceived-relative-argument model) to simple single-reason heuristics (priority heuristic). We present eye movement data recorded whilst participants choose between simple gambles. Two surprising yet simple results provide significant constraint on process accounts: (a) The duration and number of fixations of an attribute was independent of its size and the size of other attributes. For example, larger and more likely amounts are not viewed more often, which suggests gambles are not evaluated by repeated micro-plays. (b) The pattern of transitions between attributes is stable over the course of a choice. That is, eye movements do not differ in early and late phases of a choice: As soon as you are looking, you are choosing. This stability in eye movements rejects two-stage models with a reading then a deciding phase. But eye movements do predict the choices people make and do so over and above knowledge of the probabilities and outcomes in each choice, so a joint model of choice, choice time, and eye movements should provide a better process-account of risky choice.

Eye tracking JDM**Focusing on what you own: Biased information uptake due to ownership****John Galsworthy Building Room JG2007****Nathaniel Ashby**Max-Planck Institute for Research on Collective Goods
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The endowment effect has been at the center of a heated debate for over 30 years. Recent research suggests that differential focus of attention might play a role. Using an evidence accumulation model, and assuming a constant sampling bias, we generate several hypotheses and test them against predictions derived from loss aversion. Employing a simple WTA/WTP paradigm with the inclusion of time constraints on deliberation and the use of eye tracking methodology we examine the time course and role of attention in the endowment effect. We replicate and extend the standard endowment effect with the novel finding that the WTA/WTP disparity grows as deliberations increase. We further find that perspective influences attentional focus which in turn plays a pivotal role in the construction of value.

Eye tracking JDM

Now you see it, now you don't: Integrating attention theories and metrics in information processing approaches to decision making

John Galsworthy Building Room JG2007

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It is often assumed that processing and maintaining information is resource-intensive and cognitive demands increase as the complexity of the task increases. Using probabilistic inference task coupled with a new eye-tracking paradigm to measure information processing, we examined how individual differences in working memory and attentional processing affect information processing and choice. We varied the cognitive demands on working memory by manipulating attribute cue information (i.e., measurement scale). Our results suggest increasing cognitive demands tax working memory and affect attentional processing. Furthermore, individual differences in working memory partially cushioned individuals from the adverse effects of increasing information load. In addition to presenting the summary eye-tracking variables, we present new metrics for capturing attentional weights during information processing. Particularly, we use the entire transition matrix to present the dynamic information lost in summary statistics, and develop a new metric for attention that incorporates lag terms. We also demonstrate how pupil dilation can be used as an index of mental effort and show that as the decision task increases in difficulty, so does the amplitude of the pupil dilation. We contend that decision theories must be able to account for both the global definition of attention, as well as individual differences in attentional control and processing (i.e., working memory) when attempting to understand the complexities of information processing. The present research provides a step to remedy this current gap in the decision making literature.

Eye tracking JDM

Unrevealing mental processes in interactive decision-making: An eye-tracking study

John Galsworthy Building Room JG2007

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Game theory proposes that optimal interactive decision making requires subjects to employ different strategies according to the game. In particular, deliberative processes are necessary to solve dominant solvable games, but are inefficient in coordination games, where intuition is required. We aimed to link distinct visual analysis patterns of games to these two processes. To do so we used Eye-tracking to examine how subjects visually analyzed games and investigated whether this would predict subsequent choices. We clustered subjects into 'types' according to the prevailing payoff comparisons they made in their visual analyses. This resulted in 3 general types of players: Altruistic players, which focus their attention mostly on possible game outcomes; Own focused players, which focus their attention prevalently on their own payoffs; and strategic players, which employed a relatively balanced mixture of visual analyses types. Although clustering was performed on 1 type of game, it predicted players' responses in all of the other ones. We suggest this might be due to limited visual analysis patterns, which could lead to misrepresenting the games. Altruistic players' visual patterns suggest they are using intuition. This may drive the appropriate strategy selection in stag hunt games but may induce them towards out of equilibrium strategies in dominant solvable games. Conversely, strategic players' visual analyses suggest they are using deliberative processes in solving the games. This is supported by the observation that they detect dominant strategies when present, but appear unable to identify the possibility to coordinate in stag hunt games. Own focused players almost never try to predict their counterparts' responses and appear to follow elementary heuristics.

Social JDM IV

Emotional regulation and dysregulation in social decision making: Insight from fMRI and abnormal populations

John Galsworthy Building Room JG2008

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In the present study we aimed at further exploring the role of emotions in social decision making in two different ways: on one hand, we explored the effect of top-down emotional regulation strategies such as reappraisal and how they impact on decisions. On the other, we tested individuals diagnosed with anxiety disorder to test whether emotional dysregulation affect their decisions. To accomplish the first aim, we investigated the effect of both up- and down-regulation using reappraisal strategies, on social decision-making. Participants played the Ultimatum game during fMRI while applying the strategies. Participants accepted more unfair offers while down-regulating and also rejected more unfair offers while up-regulating, relative to the baseline condition. At the neural level, the effect of reappraisal demonstrated significant activations of the lateral prefrontal cortex, together with the cingulate gyrus for unfair offers only. Importantly, the effects of modulation were evident in the posterior insula, a key region involved in the emotional reactions to unfair proposals, with less activation for down- and more activation for up-regulation in these areas. To pursue the second aim, twenty anxiety patients and twenty matched normal controls completed again the Ultimatum Game. Anxiety patients rejected significantly less unfair offers than did controls and coherently reported less negative emotional reactions. Indeed, while controls' rejection rates correlated with the level of angry, patients did not, confirming an abnormal emotional reactivity leading to wrong daily life decisions in these patients. Taken together these results confirm the role of emotion regulation strategies and emotional pathology in social decision making.

Social influences in JDM**Effects of advice consistency on stated and revealed trust****John Galsworthy Building Room JG2008****Matt Twyman**University College London
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People often learn about the levels of risk associated with different activities through advice, and their use and assessment of such advice may depend on factors such as the identity of the advisor, and the perceived quality and consistency of the advice. Earle & Cvetkovich (1999) demonstrated that explicit verbal estimates of trust in advisors correlate with perceived shared values between advisor and advisee, while Twyman, Harvey & Harries (2008) found that behavioural measures of trust placement do not always correlate with verbal trust statements. Here we apply those findings to a risk communication paradigm. Previous findings were replicated in two experiments, in which participants were given advice about a range of risky activities. However, declared trust in advice sources did not correlate with how much those sources were used in making risk judgments. Relative measures of use and assessment of advisors were also found to bear different relationships to the accuracy of advice. Judges stated not only that they had greater trust in consistently accurate advisors, but that they considered such advisors more similar to themselves than the inconsistent advisors. Although judges preferred more accurate advisors, advice consistency did not affect behavioural measures of trust placement.

Social JDM IV

The N-effect in strategic interaction

John Galsworthy Building Room JG2008

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The number of opponents influences people's competitiveness. We analyze this N- effect in social interaction implementing a repeated dictator game. As predicted we found that fewer subjects being in the lab triggered more intense social comparison. This shifted average social preferences significantly towards selfishness. In a second experiment we conducted a one shot bargaining game. In the smaller N-condition the average offers were significantly lower, while the receivers demanded a higher amount causing more rejections. Our results shed new light on real world applications like ruinous competition in duopolies. Methodologically they demand to hold session sizes constant.

Social JDM IV

When rationality and social preferences conflict: The role of self-control in social exchange situations

John Galsworthy Building Room JG2008**Eliran Halali**Ben-Gurion University of the Negev
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We explore the role of self-control on economic decisions that take place in social exchange situations. Specifically we examine whether economic self-interest or a desire for fairness and reciprocity dominate human preference. We focus on responders' behavior in the Ultimatum-Game (UG) when facing unfair offers, and in the Trust-Game (TG) when facing extremely generous offers. These offers create a conflict between economic self-interest and negative emotional reactions to unfairness in the UG, and positive emotional reactions to trusting-behavior in the TG. Adopting a dual system approach to decision making, we hypothesize that for people to behave according to their economic self-interest, they have to use self-control resources that are scarce and can be depleted. In Experiment 1, employing the UG, participants whose self-control resources were depleted rejected more unfair offers compared to control participants. Notably, this effect was absent for fair offers. In Experiment 2, employing the TG, participants whose self-control resources were depleted returned higher amounts in response to extremely generous/trusting investments (and not for low and intermediate generous/trusting investments) compared to control participants. The results suggest that preference for fairness and/or reciprocity is the default automatic reaction in social exchange situations, while behaving according to the standard economic model requires self-control.

Social JDM IV

When regulating emotions is worth money: Evidence from ultimatum and trust games

John Galsworthy Building Room JG2008

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We explore the role of emotion regulation in economic decision making. We specifically distinguish between Cognitive Reappraisal, construing a potentially emotion eliciting situation in a way that modifies its emotional impact, and Expressive Suppression, inhibiting emotion expressive behavior. In Experiment 1 we focus on effects of regulating negative emotion, by examining responses in an Ultimatum Game. Participants were randomly assigned to one of three emotion regulation conditions (reappraisal, suppression, control) and asked to accept/reject an extremely unfair proposal. Responders in the reappraisal condition reported less negative feelings. They were also significantly less likely to reject offers compared to responders in the control and suppression conditions. In Experiment 2 we focus on effects of regulating positive emotions, by examining responses in a Trust Game. Participants were randomly assigned to one of the same three emotion regulation conditions and asked to decide how much to repay a generous proposer who sent the full amount. We found a significant interaction between condition and gender. While males repaid the least in the Reappraisal condition, females repaid the most in that condition. The same pattern of gender differences was observed in a follow up study in which we replaced the reappraisal condition with an advice condition. To summarize, emotion regulation in the form of reappraisal leads to decisions that, at least for males, are closer to those predicted by the standard economic model. We discuss implications of these results in terms of understanding the role of emotions in economic decision making, and in terms of possible gender differences regarding social norms.

Social JDM IV

Would I bet on beating you? Subtly increasing other-focus helps overcome egocentrism

John Galsworthy Building Room JG2008**Sabine Pahl**University of Plymouth
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Two studies investigated egocentrism in competitive situations. Specifically, the aim was to test novel subtle debiasing techniques for the shared-circumstance effect whereby people bet more money on winning in easy than difficult knowledge quizzes. In Study 1, participants took part in a quiz competition with a friend. Being asked to complete ten sentence stems about the opponent eliminated the shared-circumstance effect, compared to completing ten sentences about the self. In Study 2, circling third-person pronouns in an unrelated task eliminated the shared-circumstance effect compared to circling first-person pronouns. The research is the first to show that subtly directing attention to the opponent or to a generic third person can eliminate egocentrism effects.

Risk perception and communication**A social decision making experiment on risk and inequality****John Galsworthy Building Room JG2009****Kirsten Rohde**Erasmus School of Economics
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Though many studies have analyzed people's concern for risk, and many have analyzed people's concern for inequality, only very few have studied how concerns for risk and inequality are integrated. Basically, when risky outcomes are distributed over several individuals, there are two types of dispersion driving preferences: dispersion between individuals, also referred to as inequality, and dispersion within individuals, also referred to as risk. We examine how people integrate the concerns for these two dimensions. Do they first process the risk dimension, and then process the inequality of a distribution? Or do they first process the inequality of distributions, and process the risk dimension later? Answers to these questions shed light on how people perceive risks that are correlated with the risks of others in comparison to risks that are uncorrelated with the risks of people around them. Examples of risks that are correlated between members of society, are risks of natural disasters like earthquakes and floods. The results of an experiment with real payoffs suggest that people prefer allocations where risk between people is not correlated. This suggests that people will demand more insurance for risks that are correlated between people within society than for risks that are uncorrelated. Thus, insurance opportunities for natural catastrophes, like earthquakes and floods, are deemed even more valuable than insurance opportunities for individual risks that show no correlation with the risks of others.

Risk perception and communication

Does moving from a war zone change emotions and risk perceptions? A field study of Israeli students

John Galsworthy Building Room JG2009

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The current field study uses data collected one week after the 2009 war ended between Israel and the Hamas militias in the Gaza Strip. The study examines emotions, perceived risks, and a comparative optimism-pessimism measure among 198 students exposed to rocket attacks and divided into three groups: (a) students who live permanently in the area, and remained there during the war in the attacked region, (b) students who live permanently in the southern region of the country (exposed to rockets) but preferred to move temporarily outside the rockets' target zone during the war and (c) students who left the campus during the war and returned to their homes outside the rockets' range.

The results indicate that those who lived outside the rockets' range felt the lowest levels of fear and the lowest perceived terror-risk. However, no significant differences were found in the levels of fear and the perceived risk from terror in those who remained in the rockets' range and those who decided to temporarily move out from the area under attack. In addition, we found that the intense emotions evoked by the missile attacks during the war affected risk perception and decreased comparative optimism not only of those in the war zone, but also for those who live in southern Israel and left the area as a precautionary measure.

These findings indicate the need to support not only civilians who live in the target area and remained during the war but also civilians who temporarily moved out of region.

Risk perception and communication**Individual differences in graph literacy:
Overcoming denominator neglect in risk
comprehension****John Galsworthy Building Room JG2009****Yasmina Okan**Department of Experimental Psychology,
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Graph literacy is an often neglected skill that influences decision-making performance. We conducted an experiment to investigate whether individual differences in graph literacy affect the extent to which people benefit from visual aids (icon arrays) designed to reduce a common judgment bias (i.e., denominator neglect, or the focus on numerators in ratios while neglecting denominators). Results indicated that icon arrays more often reduced denominator neglect and increased confidence in participants with high graph literacy than in those with low graph literacy. Results held regardless of whether the health message was framed as gains (chances of dying) or losses (chances of surviving). Our findings contribute to the understanding of the ways in which individual differences in cognitive abilities interact with the comprehension of different risk representation formats. Theoretical, methodological, and prescriptive implications of the results are discussed (e.g., custom-tailored designs of risk communication that are sensitive to the various needs and abilities of diverse individuals).

Risk perception and communication

Interpretations of risk quantifiers in business management settings: The influence of personality and cultural orientation

John Galsworthy Building Room JG2009

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According to Politeness Theory, a speaker may use strategies to communicate politely an upsetting reality (e.g., risk quantifiers such as 'it is possible'). As such, communicating risk about the occurrence of an event can be interpreted as a face-management device rather than a likelihood-communication device. We conducted two studies in the setting of business management focusing on the determinants of the interpretation of risk quantifiers (face-management versus likelihood-communication). First we investigated the effect of three contextual factors (power of the hearer with respect to the speaker, affective distance between the speaker and the hearer, and severity of the threat) in determining risk quantifier interpretation and the effect of the interpretation on risk perception and decision-making of managers (N = 91). Our results showed that close affective distance was more likely to result in interpretation of the device as face-management and managers interpreting risk quantifiers as face-management devices perceived greater risk than managers interpreting risk quantifiers as likelihood-communication devices. Then we studied whether personality traits and individual cultural orientations influence the interpretation of risk quantifiers together with the effect of the interpretation on risk perception and decision making of managers (N = 203). Managers with collectivism and high power distance scores were more likely to interpret risk quantifiers as face-management devices. The implications a politeness interpretation of risk quantifiers in business management and the effect of personality and culture are discussed.

Risk perception and communication**Public response to recent crises: A longitudinal look at fear, risk-related behaviors and support for different policy measures****John Galsworthy Building Room JG2009****William Burns**Decision Research and Cal State University San Marcos
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We report a longitudinal analysis of public response to the terrorist attempts on Flight 253 and Times Square as well as the Haiti earthquake and aftermath of the financial crisis. Specifically, we track both the level and change of people's fear and risk-related behaviors from December 2009 to December 2010. We also examine perceptions and support for a number of policy measures. A diverse online panel of over 600 individuals participated in the study. Data were collected on December 31, 2009 and January 21, February 24, May 12, September 20, and December 13, 2010. Following the incident on Christmas day many reported moderate to high levels of fear with respect to air travel and a smaller percentage indicated they would postpone air travel. Fear and intentions to postpone travel decreased over time with the steepest decline occurring soon after the incident. Following the attempt in Times Square, there was a similar public response. Trust in the Department of Homeland Security and support for full body scanning remained moderately high during the study. There was considerably less support for more routine airport security measures. We also compared public response to the Haiti earthquake, terrorism and the financial crisis. Sadness was the primary emotional response to the Haiti earthquake and it decreased markedly over time. Anger was the central response to the threat of terrorism and both sadness and anger to the financial crisis-these emotions remained constant throughout the study. We offer explanations for these findings and provide suggestions for the timing and content of risk communication.

Risk perception and communication**Uncertain, tactful or simply cautious?
Investigation of the functions of
linguistic quantifiers of uncertainty****John Galsworthy Building Room JG2009****Marie Juanchich**Kingston Business School, Kingston University
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When someone is told: 'it is possible that you will lose your investment', the risk quantifier 'possible' can be interpreted to communicate a degree of certainty (i.e., likelihood communication device) but also to tactfully communicate the probable occurrence of losses (i.e., face-management device). We suggested that risk quantifiers can be perceived as performing a third function: to prevent the hearer blaming the speaker in case the outcome does not occur. In this case the recipient will systematically adjust the risk perception upward. In three experiments we investigated how individuals interpreted the function of risk quantifiers and the effect of this interpretation on risk perception. Results showed that the responsibility-avoidance interpretation was the most frequent for negative outcome predictions (Experiment 1 and 2) as for positive ones (Experiment 3). Most important, the three studies consistently showed that each device interpretation resulted in different risk perception. Results are discussed within the framework of the politeness theory.

Judgement of uncertainties and values II**A causal model theory of judgment****John Galsworthy Building Room JG2010****Abigail Sussman**Princeton University
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Two primary approaches have defined the debate over how people combine available information to form judgments: linear models and heuristic models. Each approach has been able to demonstrate a high correlation between individuals' predictions and actual outcomes under certain circumstances, but both approaches also have systematic gaps in their ability to make predictions under various (and predictable) environmental situations. We propose a new model, based on the notion that people rely on an understanding of the causal relationships between cues to determine how they should be weighted. This new model, mimics the predictions of linear models for certain patterns of causal relationships, mimics heuristic models for others, and makes accurate novel predictions that neither linear models nor heuristics can easily explain. Across several studies, we asked people to make judgments based on the values of two predictive cues. Critically, we systematically varied the causal relationships among the cues. The predictions of the causal model consistently met or exceeded the accuracy of predictions of made by either linear or heuristic models. Furthermore, the causal model theory can specify when predictions of linear versus heuristic models will be more accurate, and make unique predictions in other situations. Results support the hypothesis that the presumed combination of heuristics and linear models is actually describing specific instantiations of reliance on causal models in judgment.

Judgement of uncertainties and values II**Are the highest performers the most impressive?****John Galsworthy Building Room JG2010****Jerker Denrell**

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The relation between observed performance and ability is central to discussions of reward and selection processes - are the highest performers likely to have the highest expected ability and future performance? Past research has illustrated why it is difficult to make predictions based on past performance, particularly because people often ignore the effect of regression to the mean. In this paper we point to a different effect of regression to the mean—its effect can be stronger for extreme performances. We show that high levels of randomness can in fact lead to a negative association between performance and ability for high levels of performance. The implication is that the highest performers are not the most impressive - instead, agents with moderately high performance are expected to have the highest future performance. We first demonstrate how this conclusion can be derived from a formal model. We then illustrate that the basic results are consistent with the game results of the U.S. Major Baseball League between 2000-09. We also report the preliminary experimental results suggesting why it is difficult for people to learn that the highest performers are not the most impressive. We thus extend the saddening aspect of the human condition discussed in Kahneman and Tversky (1973). We not only are 'exposed to a lifetime schedule in which we are most often rewarded for punishing others, and punished for rewarding'(p. 215), but are exposed to recurrent disappointments when trying to learn from or reward exceptional performers.

Judgement of uncertainties and values II**Dialectical instructions are not needed to achieve the wisdom of many in one mind****John Galsworthy Building Room JG2010****Chris White**University of Lausanne
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Herzog and Hertwig (2009) showed that an individual's initial estimate of an unknown criterion could be improved by asking the person to make a second estimate and averaging the two together, and that this effect was far stronger when the participants received special (dialectical) instructions to consider why their first estimate might be wrong before making their second estimates. In this paper, the data from Herzog and Hertwig's experiment is reanalyzed to show that when more appropriate measures of accuracy change are used, participants improved their accuracy to an equal degree regardless of the type of instructions received. Further analyses are presented that investigate why the accuracy change measure they used was inappropriate. A new experiment is also reported in which there was again no differences in accuracy change between the dialectical and control instructions.

Judgement of uncertainties and values II**Has something happened? Using judgment to detect regime change****John Galsworthy Building Room JG2010****Nigel Harvey**University College London
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People often need to monitor a stream of data to assess whether something has happened. In other words, they need to decide whether there has been an underlying change in the way it is produced. This type of change is usually termed a 'regime change' to distinguish it from a change (such as a trend in the data) that reflects an unchanging underlying process. Detecting regime change is a ubiquitous judgment task. For example, doctors and therapists monitor diagnostic indicators for signs of disease onset and for evidence that a prescribed treatment is effective. We investigate factors that influence how well people are able to judge whether a regime change has occurred. In a typical scenario, we present people with graphs of (simulated) water levels in a series of lakes or rivers and, for each one, ask them to decide whether it contains a sudden and sustained increase in the water level (indicating a risk of flooding). In a first experiment, we varied sequential dependence and showed that false alarms significantly increased, and correct rejections correspondingly decreased, as sequential dependence in the series increased. We discuss possible reasons why these effects occurred and what they tell us about the cognitive processes underlying judgment in this task. We also report additional experiments examining effects of trends in series, higher order autocorrelations, negative autocorrelations, and data format (graphs versus tables).

Judgement of uncertainties and values II**Haunted by a Doppelgänger: Similarity effects in multiple-cue Judgments****John Galsworthy Building Room JG2010****Bettina Von Helversen**University of Basel, Switzerland
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When making judgments about other people, such as evaluating a possible future employee or the mental health of a patient, people draw upon a multitude of information. Human judgments based on multiple cues can often be well described by linear decision rules. However, recent research indicates that also similarity-based processes such as exemplar memory influence judgment processes. Here, we suggest that rule-based processes can be systematically biased by similarity. In two experiments we show that in a personnel selection context people did not only take the explicitly provided characteristics of the applicants into account. Instead, we found that the facial similarity to successful and unsuccessful persons systematically affected the evaluations of the applicants, even though participants used and integrated cue information according to a linear decision rule. This suggests that people do not rely exclusively on either a rule-based or a similarity-based judgment process, but rather integrate information from both processes to a single judgment. Recent simulation studies show that this may be a rational strategy: Across 43 large real-world domains averaging exemplar and rule-based judgments led to more accurate judgments than completely relying on either of the strategies or choosing the strategy that had performed better in a learning sample.

Judgement of uncertainties and values II**On the (sole?) role of recognition fluency in comparative judgments****John Galsworthy Building Room JG2010****Benjamin Hilbig**

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Recent heuristic models propose a specific interplay between memory and judgment processes. Whereas one of these, the recognition heuristic, has been widely studied, its recent extension (the fluency heuristic) has received relatively little attention. The latter assumes that retrieval fluency - that is, the speed with which objects are recognized - will determine inferences in a single-cue fashion. However, due to methodological difficulties this latter aspect has not yet been tested conclusively. As a remedy, we present a measurement model from the class of multinomial processing tree models which can estimate true single-cue reliance on recognition and retrieval fluency in comparative judgment tasks. We apply this model to aggregate and individual data from a probabilistic inference experiment and use both goodness of fit and model complexity to evaluate different hypotheses. Results show that - both compared to the recognition heuristic and in absolute terms - the fluency heuristic is an unlikely candidate for describing comparative judgments.

Challenges and Advances in Modeling Risky Decision Making

John Galsworthy Building Room JG0002

11:30 - 12:30

Conveners

Thorsten Pachur and Renata Suter

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Discussant

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Describing and predicting risky decision making has been and continues to be one of the key challenges for decision science. Historically, the expectation framework² according to which risky options are evaluated based on a multiplicative combination of transformed outcome and probability information³ has served as the key modeling framework for investigating this issue. The currently most popular model in that tradition is prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). Although widely used to study and quantify risky decision making, much of the work on prospect theory remains largely unconnected to recent modeling work in cognitive science (e.g., overfitting, developments in parameter estimation techniques, model selection). Moreover, given that prospect theory does not explicitly attempt to model the information processing steps preceding a decision, it is necessary to examine its relationship with process models, in particular heuristics. The goals of this symposium are (a) to present recent tests of prospect theory that build upon modeling developments in cognitive science and which provide new insights on the merits and best practices of fitting prospect theory to data; (b) investigate to what degree prospect theory and heuristics might be used as complementary rather than alternative modeling approaches, and (c) to give an overview of recent normative and empirical challenges to the question of how to define risk taking as well as alternative modeling frameworks to model behavior under risk and uncertainty.

Hierarchical Bayesian parameter estimation for models of decision under uncertainty

John Galsworthy Building Room JG0002

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Traditionally, model of decision under uncertainty are fitted to either individual or group-level data. Both of these approaches come with specific problems, the first is susceptible to noise in data and the second ignores individual differences. We argue that hierarchical modeling, where models are fitted simultaneously to individual and group-level data, provides an elegant compromise. We compare a hierarchical Bayesian implementation of CPT with a traditional implementation (fitted using a maximum likelihood approach) and show the benefits of the former approach. Our analysis also revealed the difficulties of estimating CPT's parameters reliable.

Challenges and Advances in Modeling Risky Decision Making**Parameter stability in cognitive models of risky choice: An analysis of prospect theory****John Galsworthy Building Room JG0002****Thorsten Pachur**University of Basel
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In the behavioral sciences, a popular approach to describe and predict behavior is cognitive modeling with adjustable parameters, which can be fitted to data. Adjustable parameters allow capturing stable differences between people. At the same time, parameter estimation also bears the risk of overfitting, but tests of the temporal stability of individually fitted parameters in cognitive modeling are very rare. We examined the parameter stability in cumulative prospect theory (CPT), arguably the most widely used framework to model decisions under risk. Specifically, we examined (a) the temporal stability of CPT's parameters; and (b) how well versions of CPT with different numbers of adjustable parameters predict individual choice. CPT was fitted to each participant's choices in two separate sessions, which were one week apart. All parameters were substantially correlated across time, in particular when using a simple implementation of CPT. CPT allowing for individual variability in parameter values predicted individual choice better than both an implementation with a common set of parameters for all participants and various simple heuristics. Prospect theory's parameters thus seem to pick up stable individual differences that need to be considered when predicting individual risky choice.

Challenges and Advances in Modeling Risky Decision Making**Building bridges between alternative accounts of risky choice: How does Prospect Theory reflect the use of heuristics?****John Galsworthy Building Room JG0002****Renata Suter**
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Expectation-based theories of risky choice (e.g., prospect theory) and theories of heuristics are usually interpreted as opposite and incompatible views. Whereas prospect theory predicts choice behavior based on a multiplicative combination of all outcome and probability information, many heuristics assume limited information search or forgo information integration. However, prospect theory can also be understood as measuring psychophysical characteristics of decision making independently of the underlying information processing steps. From this perspective, prospect theory might offer a tool to characterize heuristic decision making based on established constructs such as probability sensitivity and risk aversion. Is prospect theory able to capture heuristic decision making in a meaningful way? And how is the use of heuristics reflected in prospect theory's parameters? To find out, we fitted cumulative prospect theory to the predictions of various heuristics (e.g., priority heuristic, minimax, most-likely). It turned out that heuristics that give only little attention to probabilities produced more strongly S-shaped weighting functions than heuristics that focus on probability. Moreover, heuristics that are generally risk seeking for gains resulted in more elevated weighting functions. Heuristics that mainly focus on outcomes produced more linear value functions than heuristics that ignore outcome information. The results suggest that prospect theory and heuristics can be viewed as complementary approaches to model risky choice. Observed differences in outcome sensitivity, probability sensitivity, and risk aversion do not necessarily result from a common process that considers all outcome and probability information but could instead result from different heuristics.

Challenges and Advances in Modeling Risky Decision Making**On the coefficient of variation as a predictor of risk sensitivity****John Galsworthy Building Room JG0002****Elke Weber**Columbia University
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The coefficient of variation (CV) has recently been questioned as a normative criterion for risk taking in risky choice because it predicts violations of dominance, as well as on descriptive grounds because such violations are not observed some reported studies. I counter the normative argument by suggesting that occasional violations of dominance might be the price that organisms with only limited processing capacity pay to achieve a broad set of goals. The consistency axioms of rational choice theory have a long history of falling short of accounting for such tradeoffs. I then address some reported instances of descriptive failures of the CV to predict risk taking (Cox & Sadiraj, 2010), showing them to be inappropriate or inconclusive arguments against the use of the CV as a measure of risk in risk-return models of human and animal risk taking. Finally, I present new behavioral and neuroscience evidence in support of the CV as a predictor of risk taking, especially in decisions from experience, for which the model was developed.

Quantum theory applied to risky decision making behavior

John Galsworthy Building Room JG0002

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The purpose of this paper is to introduce the application of quantum theory to cognitive and decision researchers. This research is not concerned with modeling the brain using quantum mechanics, nor is it directly concerned with the idea of the brain as a quantum computer. Instead it turns to quantum theory as a fresh conceptual framework for explaining empirical puzzles, as well as a rich new source of alternative formal tools. Can quantum theory provide new answers to puzzling results from decision research that have resisted formal explanations so far? To answer this question, this paper will show how a quantum model provides a simple and elegant explanation for two puzzling phenomena from decision research: Shafir and Tversky's (1992) disjunction effect, which violates Savage's sure thing principle; and dynamic inconsistency, which challenges axioms required for backward induction analysis of multistage decisions.

Contributing to Individuals, Groups, and Public Causes

John Galsworthy Building Room JG0002

14:30 - 16:30

Convener

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Discussant

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The research projects presented in this symposium explore different forms of pro-social giving such as charitable donation, real micro-financing decisions, and willingness to pay for public goods. The findings offer important insights pertaining to the determinants of the decision to give. These determinants include the nature of the target of help, the beliefs and attitudes of the decision maker, awareness of victims not helped and the circumstances of the decision. Although each project focuses on a somewhat different set of determinants, the findings may well generalize across the different types of choices, delineating a fuller picture of the psychological determinants of pro-social behavior and generosity.

Pro-social behaviour in moral dilemmas: The role of dissonance reduction in donation decisions

John Galsworthy Building Room JG0002

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We conducted three studies to examine the effect of dissonance reduction on affective and cognitive evaluations of recipients of donations. When framed as a moral choice dilemma, donation decisions evoke dissonance that motivates changes in evaluations of people in need of help. Our results show that participants were motivated to reduce this dissonance by spreading evaluations when they are forced to make a decision, but not when the decision can be deferred to someone else or when the donation recipient is determined randomly. The moderating effect of decision deferral on spreading evaluations is stronger when the donation recipients are individuals vs. humanitarian aid programs. Also, people show the tendency to avoid the decision by not donating at all when no other means of decision deferral are given. We discuss these findings with regard to cognitive dissonance theory and recent work on emotions in pro-social behaviour and advance a model in which emotion regulation is a central determinant for charitable contributions.

Contributing to Individuals, Groups, and Public Causes

Microfinance decisions

John Galsworthy Building Room JG0002

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Micro-financing has recently emerged as a leading contender to cure world poverty. Our research investigates the characteristics of borrowers that engender lending in a field setting with real world and consequential data. We observe that lenders favor individual borrowers over groups or consortia of borrowers, a pattern consistent with the identifiable victim effect. They also favor borrowers that are socially proximate to themselves. Across three dimensions of social distance (gender, occupation, and first name initial) lenders prefer to give to those who are more like themselves. Finally, we discuss policy implications of these findings.

Monday

Tuesday

Wednesday

Thursday

Ambient odors and evaluation of an environmental public good: The role of semantic congruence

John Galsworthy Building Room JG0002

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Standard economic theory assumes that the evaluation of a public good is a function of the evaluation of expected cost/benefit. 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 the neutral olfactive 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 environmental goods. Findings are discussed in terms of the interplay between cognitive and affective aspects.

Contributing to Individuals, Groups, and Public Causes

Pseudo-inefficacy: When awareness about those we cannot help deter us from helping those we can help

John Galsworthy Building Room JG0002

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In a charitable giving context, we examine if knowledge of those “out of reach” triggers negative feelings that counter the good feelings from giving aid, thus demotivating action. In this presentation we describe three studies examining the affective processes that contribute to this phenomenon. We hypothesized that awareness of those not helped reduces the “warm glow” (a positive feeling) associated with giving aid (e.g. a hedonic benefit). We tested this hypothesis by asking participants to rate their warm glow for various scenarios where we vary the number of children helped and not helped (e.g. helping 1 child, helping 1 not helping 1, helping 1 but not 6). We predicted, and found that the warm glow was greatest for single child and decreased as excluded children were highlighted. In study 2, using students in a class we found similar effects for a different set of scenarios; the single child got the highest ratings of warm glow. When it was help 1 child of 2, that percentage dropped. Help 2 of 3 increased slightly and, interestingly, help 6 of 7 increased further, but was still less than helping 1 of 1. In a third study we compared hypothetical donations requests and experienced positive and negative affect for a single victim with a scenario where participants could donate to another single child, but not six others. Consistent with our warm glow findings in studies 1 and, general positive affect and donations decreased in the pseudoinefficacy condition. Together, these studies show that awareness of those not helped create less positive emotion for-, and may demotivate from helping those they actually can help. This is a form of pseudo-inefficacy that is nonrational. We should not be deterred from helping one just because there are others we cannot help.

Contributing to Individuals, Groups, and Public Causes**Protective donation: When refusing a request for a donation increases the sense of vulnerability****John Galsworthy Building Room JG0002****Tehila Kogut**Ben-Gurion University
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May refusing a request for a donation be conceived as 'tempting fate'? Do people feel more vulnerable when they do not comply with such a request? In this paper we examine the link between subjective perceptions of vulnerability and people's willingness to help address a threatening cause. Results of our studies, examining a real life situation, hypothetical scenarios and a controlled lab game with actual monetary costs and rewards, show first, that deliberately helping is positively correlated with the perceived likelihood of becoming a victim of the same misfortune. Second, we show that refusing to donate to a threatening misfortune increases sense of vulnerability. Both phenomena occur especially for people with strong belief in a just world, who believe in a causal relationship between people's behavior and their fortune (rewards and punishments).

Risk perception and risk communication**When do we shoot the messenger?
Judging the responsibility of a speaker
who gives uncertain statements****John Galsworthy Building Room JG3004****Amelie Gourdon**University of Birmingham
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In four experiments we tested how speakers predicting uncertain events were held responsible according to the uncertainty format they used. In experiment 1, speakers used percentages, positive verbal probabilities or negative ones, of different magnitude. Speakers were held less responsible for predicting a positive event with a positive verbal probability or a percentage, but more for predicting it with a negative verbal probability. Speakers were also held more responsible if the outcome was negative than if it was positive. In experiment 2a, speakers used round or precise percentages (e.g., 70% or 71%). Only speakers who used round percentages were held more responsible after a negative outcome. In experiments 1 and 2a participants' judgements ignored the predicted likelihood of the uncertain event. Experiment 2b replicated experiment 2a with an additional measure of the intention to recommend to another. Speakers were held more responsible for positive than for negative outcomes and if the event's likelihood was high rather than low. Intention to recommend was rated higher for positive than for negative outcomes; this difference was bigger if the event's likelihood was high. Level of precision had no effect on the responsibility judgements or on the intention to recommend. Experiment 2c replicated experiment 2b but the responsibility judgement and the intention to recommend were measured between participants. Speakers were held more responsible and were more likely to be recommended for positive than for negative outcomes. They were held more responsible if the event's likelihood was low, but were more likely to be recommended if this likelihood was high. We discuss how these findings inform our understanding of the Preference Paradox (Erev & Cohen, 1990).

Risk perception and risk communication

Context effects on the interpretation of verbal expressions of speed acceleration

John Galsworthy Building Room JG3004

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The context is known to influence words' interpretation (Pepper & Prytulak, 1974; Teigen & Brun, 2003) such that the same verbal expression can have a different meaning in different contexts. This is an interesting problem concerning decision support systems (Boegl et al., 2004) and man-machine interactions where technical systems receive spoken language commands. We explored the influence of the context (ground speed) on the interpretation of verbal expressions of acceleration (e.g., "slower") and used a translation procedure (Bocklisch et al., in press) to translate the words and create fuzzy membership functions (MF). Fifty participants (mean age 26 years, SD = 9.3) took part in the study. The task of the participants was to translate five verbal expressions of acceleration (e.g., "Please drive: much slower, slower, with equal speed, faster, much faster.") into numbers. The resulting MFs differ significantly in their position on the underlying numerical speed scale as well as in their shapes and overlaps depending on the context (ground speed). Results show that the context (ground speed) influences the interpretation of verbal expressions of acceleration. The words' meaning can be modeled using fuzzy MFs. These functions allow a precise determination of the discriminatory power of the words depending on the context. Therefore, they may serve as a basis for choosing useful verbal expressions, for instance, for language commands in man-machine interaction.

Risk perception and risk communication

Climate change: Values, risk perceptions and theory of planned behaviour

John Galsworthy Building Room JG3004

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To assess public perceptions of climate change, an online survey was conducted in November 2008 among all university members of a Swiss university (students and staff, total=23568). Data were analyzed by means of a structural equation model using the Theory of Planned Behaviour (Ajzen 1985) as the theoretical basis. The modeling followed a step-by-step procedure: First a basic ToPB model was build. This basic ToPB model was then extended using the value types from the cultural theory developed by Wildawsky (1987). Another extension of the model was done by incorporating the risk perception variables introduced in risk perception research by Dake (1991). Regarding the extended model, Attitudes had the biggest effect (.64) on Intentions, followed by Subjective Norm (.28). In contrast, Perceived Behavioral Control had no effect. The explained variance in Intentions was about 72%. The extended model further showed that the risk perception variables Vulnerability and Severity have moderate effects on Attitudes (.21 and .14) and on Norms (.22 and .26). People who perceive Climate Change as a high risk have more positive Attitudes towards the use of public transport and feel more social pressure to behave climate-friendly. The value types have an impact on Vulnerability, Severity and on Attitudes and Norms. As expected, Individualists have negative effects on the model variables whereas the Egalitarian and Fatalist have positive effects on the model variables. The explained variance in Attitudes and Norms is 31% and 29% respectively.

Risk perception and risk communication

The role of causal beliefs in climate change perceptions and preferences for policy actions

John Galsworthy Building Room JG3004

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We present a cross-national survey on climate change that investigated the role of risk perceptions and causal beliefs in the formation of policy preferences of economics and business undergraduates from six countries: Austria, Bangladesh, Finland, Germany, Norway, and USA (total N = 664). Five constructs were measured; reduced to the following dimensions via factor analysis: a) risk perception: dread, moral responsibility, equity, known risk, controllability; b) perceived causes: environmentally harmful practices, carbon emissions, volcanoes; c) perceived consequences: societal and personal consequences; d) perceived effectiveness of policy actions: green practices, carbon policies, engineering solutions, and e) support for the same policy actions. Differences between countries are generally small. Bangladesh is the country that differs most markedly from the other countries. For example, Bangladeshis perceive higher dread and more severe personal consequences, and identify environmental harms rather than carbon emissions as the most important cause. Regression analyses with one of the policy support factors as criterion and the other factors as predictors show that policy support can be predicted from people's risk perceptions and causal models. In all analyses, adding perceived causes and perceived effectiveness as predictors adds significant amounts of explained variance. Perceived effectiveness is generally a stronger predictor than ascribed causes. The three models yield specific patterns of significant predictors, demonstrating that support for a specific type of policy goes together with specific risk perceptions and causal beliefs. In sum, the results demonstrate the important role of causal beliefs in both risk perceptions and preferences for policy actions.

Risk perception and risk communication

Health risks of electromagnetic fields: Exploring differences in lay and expert beliefs about health risks to improve risk communication

John Galsworthy Building Room JG3004

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The purpose of this study was to compare lay and experts knowledge and beliefs of electromagnetic fields (EMF). Through this comparison, we aimed to assess focal points for adjusting information about EMF fitting people's existing ideas and beliefs in order to improve people's comprehension of EMF. We used a descriptive qualitative Mental Models Approach (Morgan et al., 2002) to assess both lay and experts beliefs potential health risks of EMF. An expert model was constructed based on a search of the relevant literature and interviews with 15 experts with different expertise. The lay mental model was based on interviews with 12 lay people using the expert model as a guide. The expert model and lay mental models of EMF were then compared to determine the focal points for risk communication. Our result showed that lay people had little knowledge about the technical aspects of and exposure to EMF. In contrast to the experts, many lay participants believed EMF, in particular of base stations, to be a risk to health. In addition, most lay participants thought some people were especially sensitive to EMF. On the other hand, personal perceptions of EMF risk were low and participants did not particularly worry about the danger of EMF. Lay knowledge about precautionary measures and government policy towards EMF was mostly either absent or incorrect. In conclusion, focal points for risk communication are the misconceptions and knowledge gaps about the nature and magnitude of EMF exposure in daily life, health effects and exposure management.

Risk perception and risk communication**Lay people's mental models about
cardio-metabolic health risks:
A call for better risk communication****John Galsworthy Building Room JG3004****Olga Damman**VU University Medical Center
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The aim of this study was to assess lay people's mental models about cardio-metabolic health risk, to be able to adjust risk information to these mental models. Information that fits with people's existing ideas and beliefs will likely improve people's comprehension and use of risk information. To assess lay people's mental models about cardio-metabolic diseases (diabetes, cardiovascular disease, kidney disease), we interviewed 40 lay people with different socio-economic background. In these interviews, we asked open-ended questions about the risks of these cardio-metabolic diseases. The lay mental models were qualitatively analyzed and compared with the conceptions of experts (physicians and epidemiologists) to assess the focal points for better riskcommunication. Although we found substantial overlap between the content of lay mental models and expert conceptions, lay people differed from experts in the value attached to certain causes (e.g. ageing), risk factors (e.g. abdominal obesity), and risk reduction strategies (e.g. losing weight). Lay conceptions were not as coherent as expert conceptions, but were rather superficial, indiscriminate, and fragmented. The identified focal points for risk communication were to: (1) emphasize a coherent total cardio-metabolic risk concept; (2) explain the shared risk factors and the interrelatedness between the 3 diseases; and (3) address certain concepts that lay people mark as important, such as stress and adverse socio-economic circumstances. The typical cardio-metabolic risk messages currently available do not fit with lay conceptions. If we want to improve communication about cardio-metabolic health risk, we should build on the principles derived from our focal points.

Risk perception and risk communication

Risk perception of pharmaceutical drugs: Expert judgment in the European regulatory network

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To date, the majority of studies comparing judgments of risk between laypersons and experts show a persistent divergence (Kraus et al., 1992; Slovic et al., 1995). There has been insufficient attention paid to the possibility raised (Christensen-Szalanski, 1989; Faust, 1985; Rowe et al., 2001; Sjöberg, 2002) that in some situations expert judgment may also be influenced by over/underconfidence, motivational bias, and other biases. The aim of our study was to explore the perception of risk among expert medical assessors who evaluate whether a drug's benefits outweigh its risks; our hypothesis is that experts are not only influenced by the probability and magnitude of a risk but may also be influenced by their perception of risk. We tested this hypothesis among 80 medical assessors in 9 EU countries. We included an adaptation of the Slovic et al., 2007 study, evaluating 28 pharmaceutical items to examine how different their perceptions were to laypersons; we measured risk taking /risk perception in 5 domains (Social, Financial, Health/Safety, Recreational, Ethical) using the DOSPERT scale (Blais et al., 2006); we collected data for several benefit/risk dimensions after assessors had reviewed clinical data specific to their area of expertise. Our results showed perceived risk for cancer drugs was the highest, followed by diet drugs, sleeping pills and drugs for AIDS. Vitamin pills and nicotine patches had the lowest risk. Most items were seen as low-medium risk/high benefit; risk taking as measured by DOSPERT was negatively correlated to the risk perceptions of an activity across all domains except Social; factor analysis of several benefit/risk dimensions revealed 2 latent factors that explained 59% of the variability in the data.

Risk perception and risk communication**Musical genre, sub-culture, and differences in harm perception of illicit substances among music festival visitors****John Galsworthy Building Room JG3004****Wolfgang Wiedermann**Carinthia University of Applied Sciences
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The study analyses the impact of sub-cultural norms on the perception of associated health hazards in a social environment which promotes drug use. Trivialization of harm was assessed as a function of sub-cultural differences among visitors of the Open-Air Music Festival St. Gallen. In 2009, a split-ballot experiment ($n = 376$) was designed to test the impact of cognitive availability of high prevalences of substance use on perceived risk associated with heroin, cocaine, cannabis, alcohol, and tobacco use. In 2010, a second experiment ($n = 222$) was designed to explore sub-cultural factors on a trivialization effect through additionally analysing musical preferences. In 2009, cannabis was perceived as the least harmful substance, followed by tobacco, alcohol, and cocaine. Cannabis was also judged as least addictive, followed by alcohol, tobacco, and cocaine. If prevalence estimates preceded risk judgements a significant decline for perceived sequelae was observed for cannabis, alcohol, and tobacco. In 2010, alcohol was considered more dangerous than cannabis, but a reversed picture was observed for the fans of alcohol-associated acts. A significant interaction effect was observed for musical preference, estimated prevalence, and cognitive availability of substance use: Trivialization of perceived addictiveness was observed for the substance which is not associated with one's musical preferences. The present study confirms the existence of a context dependent trivialization effect, with regard to perceived hazards of substance use. This effect is modulated by a sub-cultural peer group membership. Thus, future harm reduction interventions need to take into account sub-cultural factors in order to successfully correct misperceptive group norms.

Risk perception and risk communication**Linguistic multi-person decision making
with probabilities and OWA operators****John Galsworthy Building Room JG3004****Jose Merigo**University of Barcelona
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We develop a new decision making approach in uncertain environments based on the use of linguistic information. For doing so, we present the linguistic probabilistic OWA (LPOWA) operator. It is an aggregation operator that unifies the linguistic OWA (LOWA) operator and the linguistic probabilistic aggregation (LPA) in the same formulation and considering the degree of importance that each concept has in the aggregation. It provides a parameterized family of linguistic aggregation operators between the linguistic minimum and maximum. It includes a wide range of particular cases including the linguistic minimum PA, the linguistic maximum PA and the linguistic average (LA). We analyse the applicability of this new aggregation operator and we see that we can apply it in a wide range of problems because all the previous studies that use the probability or the OWA operator can be revised and extended with this new approach because this model can always be reduced to the classical formulations. We focus on a linguistic multi-person decision making problem regarding the selection of strategies. We use a multi-person analysis by using the multi-person LPOWA (MP-LPOWA) operator. Thus, we can assess the information in a more complete way because the opinion of several experts is usually more robust than the opinion given by a single expert.

Risk perception and risk communication**Information intermediation and risks in construction****John Galsworthy Building Room JG3004****Arne Ziegert**Chalmers University of Technology
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Market diffusion of new types of concrete and associated technologies that have emerged during the last decades varies, despite progress having been made in laboratory research into both materials and structures. Yet, the diffusion of innovative concrete technologies and structural design cannot be regarded as satisfactory, thus factors besides those features identified in technical research are needed to explain the varying success of certain technologies. The purpose of the study presented in this paper is to improve the understanding of professionals as information intermediaries when choosing materials and structural design in construction projects. Theories of choice under uncertainty are applied to the process of adoption and diffusion of technologies within the construction sector, especially to concrete technologies. Professional individuals, architects, project managers, technical consultants, and contractors have been surveyed and their risk attitudes towards construction technologies in general and concrete technologies in particular have been mapped. Using two commercial databases, a sample of 111 projects that started in 2003 in three Swedish metropolitan regions has been identified. A total of 292 questionnaires were mailed to architects, structural engineers, project managers and contractors representatives in these projects. The response rate is 52.7 per cent. Results indicate that attitudes to construction site uncertainty vary across professions, as well as information search patterns and the relation between private and professional risk attitudes.

Risk perception and risk communication

The advanced numeracy test for highly educated samples (ANT-E): A brief, adaptive, validated test of risk and statistical comprehension

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In recent years, numeracy has become a topic of considerable interest to both basic and applied decision researchers. However, most numeracy tests have unknown or poor psychometric properties (e.g., high negative skew), or are only diagnostic for low skill individuals. Here we introduce a free online test, based on classical testing theory and designed for highly educated individuals, that automatically scores and sends data to researchers, and provides immediate feedback to the public. The Advanced Numeracy Test for highly Educated samples (ANT-E) provides a brief, validated, psychometrically rigorous instrument for the assessment of statistical and risk literacy (available at <https://sites.google.com/site/advancednumeracytest>).

Risk perception and risk communication**The effect of misleading graphs on the comprehension of health and political communications: Who is more susceptible to misinterpret data?****John Galsworthy Building Room JG3004****Yasmina Okan**
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Graphical displays can facilitate the communication and comprehension of numerical information. However, graphical communication can also be distorted causing judgment errors. In the present paper, we aimed to document some of the mechanisms underlying people's susceptibility to misinterpret information in graphs containing common misleading features (e.g., modified axes). In particular, we aimed to demonstrate that individual differences in graph literacy (the ability to understand graphically presented information; Galesic & Garcia-Retamero, in press) can be linked to differences in encoding and attention to key elements in graphs. Consequently, we predicted that individuals with low graph literacy would be more likely to misinterpret information in misleading graphs than individuals with high graph literacy. We conducted an experiment including graphs from actual political news journalism and pharmaceutical advertisements, in order to enhance ecological validity. Graphs were selected taking into account violations in prescriptions for graph design identified in the literature. Results revealed that less graph-literate participants were more likely to misinterpret information, particularly for graphs including unnecessary elements (e.g., a highlighted arrow containing information about relative drug benefits). Consistent with an encoding hypothesis, individual differences were shown to be partially mediated by differences in a surprise memory test on different features of graphs (e.g., superficial attributes such as the color of bars vs. specific numerical information). These findings contribute to understand individual differences in graphic-related judgment errors and have implications for applied projects in risk communication and decision support.

Risk perception and risk communication

When higher bars are not larger quantities: On individual differences in the use of spatial-to-conceptual mappings in graph comprehension

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Graphical displays use spatial relations to convey meaning, facilitating the communication of quantitative information. The translation of spatial information into conceptual information in graphs is frequently rooted in our experience with the physical environment (e.g., larger quantities of elements typically reach higher positions along the vertical dimension). However, when information conveyed by spatial features in graphs conflicts with information conveyed by features linked to arbitrary conventions (e.g., axes labels and the range of scale points), people may misinterpret the data depicted. In this paper we investigate how such conflicts affect interpretation of graphs containing health-related information. We hypothesize that people who have low graph literacy, that is who lack the skills, typically acquired by education, to understand the significance of arbitrary graph conventions, will more strongly rely on spatial-to-conceptual mappings grounded in their real world experience to interpret graphs. Additionally, they may disregard important information contained in axes labels or scale points. In an experiment, we found support for this hypothesis. Participants with low graph literacy were more likely than those with high graph literacy to rely solely on spatial features in bar graphs, even when this resulted in erroneous inferences about the data and in non-normative decisions. Results also showed that erroneous inferences were more frequent for vertically than for horizontally oriented graphs. We discuss the implications for some of the different views of embodied cognition, as well as for current models of graph comprehension and the design of effective graphical displays to communicate medical information.

Social influences in JDM**Act responsibly or let yourself go?
Effects of self-signaling through green
consumption****John Galsworthy Building Room JG3004****Moritz Susewind**
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People sometimes purchase products in order to reveal something positive about themselves. For instance, environmentally friendly products are especially suitable for sending positive self-signals. In this research project we investigate how different purchase situations influence the way people deal with such self-signals. In line with symbolic self-completion theory we assume that green consumption in public leads to a feeling of progress towards the goal of being a responsible person which causes people to behave less responsibly in subsequent situations. However, if public recognition is denied green consumption actually strengthens people's commitment to behave responsibly. In a laboratory study we asked participants to shop in an online store that contained mostly green or mostly conventional products. We additionally manipulated whether participants revealed their purchases to the experimenter (social condition) or did not share any information about their product selection (private condition). In line with our hypothesis, green consumption under social conditions lead to fewer intentions to act responsibly in subsequent situations, while green consumption under private conditions lead to more intentions to act responsibly. Hence, positive-self-signals can have dramatically diverse effects depending on whether or not the signal becomes a social reality. In order to better understand the nature of these processes, a follow up study is currently underway.

Social influences in JDM**Facial-perception decision depends on attention****John Galsworthy Building Room JG3004****Ramsey Raafat**University College London
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Judgments of trustworthiness, dominance and threat, indeed facial and emotional stimuli are fast (Bar, 2001) and are often proposed to take place in an automatic fashion, that is independent of top-down factors such as attention (Jonides 1981). Here we present work that challenges the automaticity account of these judgements. The respective role of judgements and attention, particularly in the social sphere is still an open question. Within this sphere, an essential constituent, frequently signalled by facial cues, is the appraisal of agents and their intentions; this interpretation of emotional intent is a pivotal aspect of understanding social situations. While great strides have been made in the comprehension of how attention modulates judgements, a fundamental constraint remains. As processing capacity is limited, selective attention to one element occurs to the detriment of others. The perceptual load model of attention offered a resolution (Lavie, 1995), by a form of an amalgam of early and late selection views. The predictions of perceptual load theory have been supported by diverse range of studies (Lavie, 2010). In a series of experiments we apply load theory and cognitive control to investigate these emotional judgements under load. Employing a combined visual search and face judgement task, where the level of attentional load in the search task was manipulated (by varying the search set size), the results indicated reduced accuracy for trustworthy and threat judgements, while in contrast dominance judgements were immune to the effects attentional load. These outcomes suggest that emotional judgements are not automatic, but instead depend on the deployment of attentional resources, whilst highlighting the special status for judgements about dominance.

Social influences in JDM**Delegating decisions:
Using others to make difficult choices****John Galsworthy Building Room JG3004****Mary Steffel**University of Florida
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This research explores when people delegate choices to others. We propose that people are more likely to delegate difficult choices than easy ones to avoid the potential blame they might feel if they were responsible for making a bad choice. In Study 1, participants were more likely to delegate a choice of medication to a pharmacist when the drug information was presented in a difficult-to-process format. Similarly, in Study 2, participants were more likely to delegate a choice of entrée to a waiter when the menu was printed in a hard-to-read font. In Study 3, to distinguish delegation from advice seeking, participants were presented with a choice of entrée from a 24- or 6-item menu and were asked to indicate whether they would prefer to choose the three entrées they thought sounded the best and let the waiter choose the best entrée of the three (delegation), or have the waiter choose the three entrées he thought were the best and choose the best-sounding entrée of the three (advice). Participants who received the large menu preferred delegation to advice more than those who received the small menu. Studies 4 and 5 explored the role of responsibility and accountability in the delegation of difficult choices. In Study 4, participants were more likely to delegate an investment decision to another person when the other person would assume responsibility for the choice outcome than when they themselves would be responsible. In Study 5, participants were more likely to delegate a choice of entrée to a caterer when it was for guests at a catered event than when it was for them personally. Together, these studies demonstrate that, when finding the right option and taking responsibility for the choice is too much to bear, people may opt to let others choose for them.

Social influences in JDM

**Prices need no preferences:
Social influences in pain markets**

John Galsworthy Building Room JG3004

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Understanding the behaviour of markets such as health is a central societal concern, with particular relevance to medicine, economics and marketing, political science, psychology and neuroscience. At the very heart of current public policy is a traditional economic assertion that the 'market will decide the true price', based on the assumption that people inherently know the value of a product. Here, in the first laboratory study of a genuine health market, we show that this assumption fails spectacularly. In particular, we demonstrate that market values, and ultimately prices, are strongly referenced to others' choices, and not to genuine health preferences. This suggests that the price of healthcare in a free-market has the capacity to become critically detached from its actual value, because of such psychological effects on decision making.

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Social influences in JDM**Rational order effects in responsibility attributions****John Galsworthy Building Room JG3004****Tobias Gerstenberg**
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In two experiments we establish a rational order effect in responsibility attributions. Experiment 1 shows that in a team challenge in which players contribute sequentially, the last player's blame or credit for a performance is reduced if the team's result is already determined prior to his acting. However, credit and blame attributions still vary with quality of performance in these cases. This finding is at odds with Spellman (1997) who proposed that a person's perceived contribution varies only with the degree to which it changes the probability of the eventual outcome. However, we consider this performance effect to be rational since a player's quality of performance conveys important information. It shows that the person is in principle capable and her performance could have made a difference in another situation. In contrast, if the player performed poorly, one cannot be sure whether this is due to the fact that the player did not try hard because the result was already determined or whether the player is incapable. Experiment 2 illustrates that the rational order effect does not overgeneralize to situations in which the experienced order of events does not map onto the objective order of events. When players perform simultaneously and are ignorant of each other's scores but participants experience the information sequentially, credit and blame ratings to the last player only vary as a function of performance and not as a function of the certainty of outcome. The quality of the last person's performance is only discredited if she knew that the result was already determined. Hence, the rational order effect is driven by the inferred epistemic state of the agent and not by the objective state of the world.

Social influences in JDM

The impact of self-perceived social pressure on charitable giving

John Galsworthy Building Room JG3004

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We study the impact of perceived social pressure on individual charitable giving. In an experiment, participants play a dictator game and then have an opportunity to donate any fraction of their earnings to charity. In three treatments, each participant is prompted to think about (a) her personal behaviour; (b) behaviour of other people; (c) other people's expectations about her behaviour. We compare participants' decisions in these treatments with their decisions in baseline treatment without prompting. We find that participants donate more to charity when they are prompted to think about other people's expectations of their own behaviour.

Social influences in JDM**The role of oxytocin in social norm enforcement****John Galsworthy Building Room JG3004****Mirre Stallen**

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The hormone oxytocin has long been considered important for prosocial behaviour, with researchers exploring factors such as trust, empathy, cooperation, and generosity. However, contrary to the popular belief of oxytocin being a 'love hormone', recent studies are beginning to suggest that oxytocin does not necessarily lead to indiscriminately prosocial behaviour, but rather that its effects are context-dependent and that this hormone may play a role in a broader range of social behaviours. The aim of this study is to explore the possible effects of oxytocin on social norm enforcement. If oxytocin does indeed play a key role in social behaviour, then does administration of oxytocin foster the choice to punish social norm violators? Or rather might oxytocin lead to greater willingness to compensate the victim of a social norm violation? To investigate the role of oxytocin on social norm enforcement, we are conducting a between-subject, double-blind, placebo-controlled, functional neuroimaging experiment in which participants play three versions of a monetary game: a second-party punishment game, a third-party punishment game and a third-party compensation game. If the effect of oxytocin does extend into a wider range of social behaviour, we expect that participants who received oxytocin respond more intensely to social norm violations and therefore show more punishment and/or compensation behavior than participants in the placebo group. Behavioral and neuroimaging (fMRI) results will be conducted and presented in order to assess the behavioural and neural effects of oxytocin in the context of social decision-making.

Morality, affect and intuition in JDM**Affect and intuition in decision making****John Galsworthy Building Room JG3004****Marius Usher**Birkbeck College and Tel-Aviv University
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Recent research has suggested the existence of an affective/intuition based processes that plays an important role in decision making. In this presentation we report a number of experiments, which assess the impact of mind-set manipulations on decision-making quality. To do so we presented participants with information (12 attributes) about a number of alternatives (cars or flatmates), which are distinguished on the number of positive attributes. Mind-set was manipulated between participants, either implicitly (expressing emotion in drawings) or explicitly (instructions that emphasize deliberation vs gut-feeling) and the decisions were elicited immediately after the presentation of the information. Both manipulations demonstrated an advantage for the affect/intuition based groups. In addition we examined the role of emotion on the estimation of the average of sequences consisting of numerical values. The results are interpreted within a framework based on two interacting subsystems of decision-making: an affective/intuition based system and an analytic/deliberation system.

Morality, affect and intuition in JDM

Research without rationality?

John Galsworthy Building Room JG3004

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It has been suggested that research on judgment, decision-making, and reasoning has been unduly -and counterproductively- focused on behavioural comparisons with normative standards of rationality (e.g., Elqayam & Evans, in press). It is argued that far from being a roadblock to progress, understanding human behaviour needs to draw on rational norms not just for functional explanation (why?) but for the core project of identifying underlying processes and mechanisms. Consequently, as is illustrated by example, rational norms are essential not just for judgment and decision-making, or reasoning research, but for other areas of psychology as well.

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Morality, affect and intuition in JDM**Is it in the eyes? Using eye-tracking to study clinical intuition in novice, intermediate and very experienced clinicians****John Galsworthy Building Room JG3004****Cilia Witteman**Radboud University Nijmegen
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This study examines clinical intuition by looking at information search processes of novice, intermediate and very experienced clinical psychologists. Ninety participants (30 per group) fill out a questionnaire and complete twenty decision tasks. In these tasks, participants are asked to make a diagnostic decision based on different pieces of information presented on a computer screen. Decision times are recorded, as well as information search using built-in eye tracking technology. With eye tracking fixation durations and number of fixations can be used to provide insight into cognitive processes. More specifically, shorter fixation durations, fewer fixations, a less complete information search and fewer repeated information inspections suggest a decreased level of processing (i.e. more intuitive processing), which is moreover related to shorter decision times. It is hypothesized that very experienced clinicians show more intuitive processing of information. The opposite is expected for novices; they probably show more deliberate processing (i.e. more long fixations, more fixations, more information inspected, more repeated information inspections, longer decision times). Intermediates are expected to be faster than both novices and experts, and to inspect the information less thoroughly (i.e. fewer short and long fixations, less information inspected, fewer repeated information inspections).

Morality, affect and intuition in JDM**Cognitive processes in clinical intuition****John Galsworthy Building Room JG3004****Amanda Woolley**King's College London
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Aim: An interview study examined the decision processes involved in clinical intuition in real patient cases in order to gain a better understanding of these processes and inform future empirical investigations. Method: 18 GPs were asked to 'think before the interview of two occasions where you felt you knew the diagnosis or prognosis of the patient but you did not know how you knew'. Using a semi-structured interview (Critical Decision Method) we attempted to elicit both implicit and explicit cues, expectancies and goals associated with judgements made using clinical intuition. For each case, the decision process was mapped out chronologically by judgement point. The cases were compared to identify commonalities. Emerging types of decision process were defined and cases independently allocated to types by two raters. Results: Twenty-four cases were analysed (32 elicited, 8 excluded) and 3 types of decision process were hypothesised ($\kappa=.75$ for allocating cases to process types): Gut-feeling processes, where the initial interpretation of the situation was later rejected based on acquired evidence; recognition processes, where GPs immediately recognised the problem and committed to that judgement despite salient conflicting information; and insight processes where without awareness of any reasoning, the solution emerged at the end of the encounter. These suggested process types are characterised by differing patterns of conflict between analytical (system 2) and automatic (system 1) judgements. Conclusion: Clinical intuition is not a unitary concept and seems to be characterised by different cognitive processes. We suggest that these processes differ in the underlying interplay of system 1 and system 2 processing and should be clarified by future empirical studies.

Morality, affect and intuition in JDM

Mindful decision makers: The influence of mindfulness on decision making style, competence, and outcomes

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In the present research, we examine the influence of mindfulness on decision making style, competence, and outcomes. Mindfulness can be defined as open, non-judgmental present-moment oriented awareness (Brown & Ryan, 2003; Kabat-Zinn, 1992). Mindfulness has been shown to be positively related to a variety of psychological well-being related variables, including lower depression and higher emotion regulation (Brown & Ryan, 2003). We predict that mindfulness will be positively associated with desirable aspects of decision making style, with decision making competence, and will be negatively associated with detrimental decision outcomes.

In Study 1, we found that mindfulness was positively related to two aspects of decision making style: decision making self-esteem ($r = .27, p < .05$) and vigilance ($r = .34, p < .01$). Mindfulness was negatively related to hyper-vigilance, an undesirable decision making approach ($r = -.29, p < .05$). Mindfulness was unrelated to buckpassing and procrastination. Further, mindfulness was positively related to self-control ($r = .39, p < .01$). In Study 2, mindfulness predicted the Consistency in Risk Perception component of the Adult Decision-Making Competence test ($r = .19, p < .05$). Further, mindfulness was negatively related to a summary index of detrimental decision outcomes ($r = -.33, p < .01$) as well as specific outcomes such as buying new apparel but not wearing them, having a check bounce, and forgetting a birthday.

Morality, affect and intuition in JDM

**Are we Catholics or Kantians?
A study on moral balancing**

John Galsworthy Building Room JG3004

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We assume that whereas exogenous fairness norms provide the metric for people to self-evaluate their behaviour, they behave like the moral accountants of catholic doctrine trimming their personal moral balance instead of following their preferences like Kantian imperatives. People construct an individual moral framework spanning actions that are independent from the perspective of ethical theory. They evade taxes but balance their moral self-perception by donating for the local hospital.

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Morality, affect and intuition in JDM

Consequentialist versus deontological judgement and moralising in public opinions about health incentives

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Paying people for healthy behaviour might be an effective component of health care policy, but reaction of the general public to such incentive schemes is mixed. Some people do not like the idea of paying smokers to stop smoking, or paying overweight people for weight loss. Are these concerns based on concerns about negative consequences, or are they deontological judgements influenced by moralisation about the underlying health problems? In a choice-based conjoint analysis, we assess participants' preferences for different treatment types (standard treatment vs different incentive types) and treatment effectiveness. Overall, participants prefer more effective treatments, and are willing to trade off their dislike for incentives against effectiveness. However, 45% of participants refuse to fund cash incentives for smokers even if this treatment is four times more effective than standard treatment (40% vs 10% effectiveness), and 29% of participants refuse to fund cash incentives for overweight people losing weight.

While these 'non-traders' might be reasonably concerned about negative consequences of incentive schemes that go beyond simple effectiveness, we find evidence that their judgement is deontological and related to moralising attitudes about smoking and weight loss: The majority of non-traders hold protected values about cash incentives. They are also more likely than traders to think that smokers are responsible for smoking and that overweight people are responsible for being overweight. Non-traders are particularly likely to pick the most extreme option of 'entirely responsible' on the 7-pt scale, which may be further evidence for categorical, rule-based reasoning rather than reasoning sensitive to quantities.

Morality, affect and intuition in JDM**Distortion of moral judgments in a decision situation with a strong temptation****John Galsworthy Building Room JG3004****Tadeusz Tyszka**Kozminski University
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Montgomery (1983; 1989) developed a theory according to which the decision maker generally tries to avoid trade-offs between attributes of the choice alternatives. Instead, he/she tries to find a promising alternative and to structure decision situation in such a way that the to-be-chosen alternative is dominant over the other alternatives. This can be done, for example, through the neutralization of the disadvantages of the to-be-chosen alternative. Such a model of decision making seems to be even more compelling in case of decisions with moral consequences. This led us to the following hypotheses: H1: When a choice alternative is profitable but at the same time unethical, the decision maker will tend to neutralize its moral disadvantage through reformulating it in a more neutral or positive way; H2: The stronger moral negative emotions are evoked by a violation of the moral norm, the stronger is a tendency to neutralize its moral disadvantage through reformulating it in a more neutral or positive way. A questionnaire containing a list of 12 presumably immoral activities was designed. The subjects' task was to indicate how well, in their perception, each activity fits four category labels: stealing, cheating, harming others, cunning. One of the items in the list was to exchange his/her difficult exam question for a much easier one drawn by another student. Two groups of students were asked to indicate how well each item on the list fits the four category labels. The control group filled the questionnaire as a simple judgment task, while the experimental group did the same in a decision situation with a strong temptation to exchange his/her difficult exam question for a much easier one. The preliminary results of the experiment seem to support our hypotheses.

Morality, affect and intuition in JDM

Decision making in shooting task: How arousal and valence affect the stereotype accessibility and racial bias

John Galsworthy Building Room JG3004

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Aim of this research was to examine how arousal and valence affects performance on a shooting task and to investigate race bias. Previous studies found that decision to shoot is affected by racial cues, with faster response to a black target. In this research we investigated if the ability to distinguish armed/unarmed target and psychological criterion are affected by arousal and valence. Three studies (S1, S2, S3) using 184 different race human figures (black/white/neutral) were run on 42 white EU Ss. In S1 participants were presented a standing human figure, and after 200ms, the same figure holding a weapon or an harmless object. Ss had to press a response key to shoot the armed person or to respond to unarmed one (target). Results showed faster response for shooting armed target ($F(1,41)=69,76, p<.001$). In S2 18 IAPS pictures with positive valence were presented before each human figure. A significant interaction prime x object was found ($F(2,41)=6,19, p<.005$). Positive valence IAPS reduced RT for no shoot decision, with slower response to shoot white target. In S3 IAPS were highly arousing and negative in valence. Results showed faster response in shooting and slower response in taking a no shoot decision with a change in the psychological criterion according to the type of IAPS pictures presented (crime/violence/generic: $F(2,40)=3,02, p<.05$). Our findings are in line with research on decision making for deadly force use. The weapon effect on RT was affected by the interaction of arousal induced by the IAPS pictures and their valence. Moreover, the interaction between the type of high arousal IAPS with negative valence (crime/violence/generic) and prime (black/neutral/white) proved that the psychological criterion was sensitive to the content of environmental cue.

Morality, affect and intuition in JDM

Influences on the ethical reasoning of tax practitioners: Exploring the individual, the context and professional socialization

John Galsworthy Building Room JG3004

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In recent years there has been a growing concern regarding the ethical behavior of tax practitioners (Shafer & Simmons, 2008), but little research has been done to investigate their ethical reasoning. In considering the ethical reasoning ability of tax practitioners, three main issues need to be considered: (i) the impact of the tax context itself on reasoning; (ii) the potential for the profession to be attractive to people for whom a particular level of moral reasoning predominates; and (iii) the training/socialization of practitioners in their professional context. We use a 2 x 2 quasi-experimental design to compare ethical reasoning across different contexts (social versus tax) and different groups of participants (tax professionals versus non-specialists). We also further sub-divide tax professionals into those who work for private firms (whose focus tends towards minimizing tax liabilities for their clients) and those who work for the Revenue authority (and are therefore focused on collecting taxes to be used for the public good) to investigate the impact of socialization in the tax profession in more depth. We find that the moral reasoning of tax practitioners does not differ from ordinary people in a social context. Levels of moral reasoning for non-specialists are unaffected by context, but tax practitioners overall apply significantly lower levels of moral reasoning in the tax context. Sub-dividing the tax profession into private practitioners and Revenue practitioners shows that the private sector practitioners apply significantly lower levels of moral reasoning in the tax context than both Revenue practitioners and non-specialists, with the latter two groups not differing significantly.

Morality, affect and intuition in JDM**When worlds collide:
Mood regulation, affect, and morality****John Galsworthy Building Room JG3004****Pär Bjälkebring**
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In two studies we found differences between people low and high in positive affect in their willingness to donate money to victims of starvation. In line with mood regulation theory, people low in positive affect predicted to be more likely to donate and they also predicted more positive and less negative emotions from donating money than did those high in positive affect. In stark contrast to this prediction, those low in positive affect were actually less likely to donate in a real donation situation. Further, participants low in PA donated less than those high in positive affect. In a second study we found different donation patterns for those low and high in positive affect. Whereas those low in positive affect donated more to an option with more victims than one with only one, the opposite was shown in those high in positive affect (consistent with the compassion of collapse literature, Slovic & Västfjäll, 2010). We conclude that the processes leading up to a monetary donations is more complex than just simple mood regulation.

Attention and Search in Decision Making

Clattern Lecture Theatre and Room JG0001*

09:00 - 11:00

Convener

Thomas Hills

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Discussant

Neil Stewart

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Many of the decisions we make are guided by the way we distribute our attention prior to making those decisions. Our attention can be guided either passively, e.g., by the nature of losses and gains in the environment, or actively, as a result of the way we search for information, choosing to sample one option over another. Moreover, factors such as executive function, age, and the role of affect are known to influence decision making, but the precise role these factors play in the decision process is less well understood. As these factors are known to influence the allocation of attention, it is possible that their influence is mediated by how they alter the way people acquire information. Given how information influences our subsequent decisions, understanding how we search for information and distribute our attention is of critical importance in developing a complete understanding of decision making.

The objective of this symposium is to collect together researchers who have taken a diversity of approaches, incorporating both old and new methodologies, to understand the role of attention and search in decision making. These studies offer interesting cross-over points with studies of cognition--several using models of cognitive processing--and how the resulting interactions with information influence the way we subsequently make decisions.

Specifically, the aims of this symposium focus on understanding the role of executive processing in guiding information search (Hills), the allocation of attention in a risk-taking paradigm (Pleskac), the role of affect in information search (Frey), the influence of gains and losses on the distribution of attention (Yechiam), and finally understanding how individual differences, such as age and working memory span, influence search.

* Live video feed from The Clattern Lecture Theatre displayed in JG0001

Attention and Search in Decision Making**Executive processing in
information search****Clattern Lecture Theatre and Room JG0001*****Thomas Hills**
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Tim Pleskac

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Recent work on individual differences in information search reveals that people reliably differ in how they mediate local versus global search policies. A recent model, called the executive search process, proposes that executive functioning may guide this search between local and global policies in internal and external environments by mediating goal perseveration (Hills, Todd, & Goldstone, 2010). To test this model in the domain of decision making, we used the sampling paradigm (Hertwig et al., 2004), observing people searching for information prior to making a decision between two gambles. Here, each gamble was associated with a different payoff distribution, e.g., option A might pay off \$3 with certainty, while option B paid off \$32 with probability 0.1, and \$0 otherwise. Following a period of unconstrained information search, where participants could freely explore options and observe payoffs, participants made a final decision and received its associated payoff. Participants also provided measures of working memory span using the automated operation span task. Using this data, we fit the executive search process model, by developing a hierarchical goal tree that describes the sampling paradigm task. Comparing several models, we found that the updating parameter in the executive search process model predicted better participant's operation spans than either the switching frequency (between options) or the total sample size alone.

* Live video feed from The Clattern Lecture Theatre displayed in JG0001

Attention and Search in Decision Making

Exploring some curious dissociations between distinctive variation in pre-decisional search and the experience-based choices that follow

Clattern Lecture Theatre and Room JG0001*

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Decisions from experience, in which payoff distributions are learned by observation, are a key tool for examining the interplay of attention, memory and information acquisition. This talk integrates findings from several studies that shed light on this interplay. The studies used a range of paradigms: decisions from samples, decisions from feedback, and binary prediction (probability learning). These studies reveal how information acquisition varies dependably across situations in ways that impact upon choice. Passive observation of outcomes differs from active exploration of the alternatives. Active search yields more rapid learning in binary prediction, and greater reliance on recent outcomes in decisions from samples. There are also dependable individual differences in information search that predict choice. Participants with greater working memory (WM) capacity acquire information more efficiently and bet more successfully in some binary prediction tasks. However, elsewhere, reliable differences in information acquisition seem paradoxically unrelated to subsequent choices. Participants with higher WM capacity make more observations before choosing in decisions from samples yet barely differ from those with lower WM capacity in their choices and reliance on initial/recent observations. Studies of decisions from samples in children and adults also show dissociation between distinctive search patterns and subsequent choices. Children alternate frequently between options when selecting which options to observe, a tendency that dissipates with age. However, choices seem unrelated to the particular mode by which observations were made, which challenges the importance of memory for recent outcomes in experiential choice. An explanation for these paradoxes is sought.

Attention and Search in Decision Making**Making assessments while taking sequential risks****Clattern Lecture Theatre and Room JG0001*****Tim Pleskac**Michigan State University
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Avishai Wershbale

In judgment and decision making, we often talk about multiple processing pathways in response selection. For example, in experience-based decision making we often distinguish between exploration and exploitation decisions. Curiously, despite this distinction, formal cognitive models of this process typically use a single response selection pathway (e.g., reinforcement learning's softmax function). In the current study, we investigated this issue of multiple response pathways in the Balloon Analog Risk Task (BART). During the BART participants inflate a computerized balloon for real money, but if the balloon pops they lose their money. Participants must decide when to stop pumping. We find that when participants complete multiple trials there are both very fast and very slow inter-pump response times (IPTs) and the pattern of IPTs changes in systematic ways. Longer IPTs occur more often in early balloon trials, but are more likely to occur the further one gets into any given balloon. We interpret this pattern of results as evidence of a learned automatic response. We use these results to modify the current cognitive model of the BART (Wallsten et al., 2005). The model proposes that on every balloon trial participants pick a goal pump to reach. On some pumps, they assess how far they are from the goal pump, but on others they simply pump the balloon. We show a model where the probability of engaging in an assessment changes based on pump and balloon trial accounts for both pump and IPT data. Moreover, we show this multiple response pathway hypothesis has clinical utility: Adolescents with conduct disorder appear to utilize the different response pathways in different proportions than matched controls.

Attention and Search in Decision Making

The effects of losses on attention provide sufficient conditions for their impact on maximization and individual differences

Clattern Lecture Theatre and Room JG0001*

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Previous studies have shown positive effects of losses (compared to gains) on performance in decision tasks and on the reliability of choice behavior. Four new experiments were conducted to assess the mechanisms implicated in these effects: Loss aversion and the effect of losses on attention. The first experiment replicated the positive effect of losses on decision making using a tax-based scenario: Negative taxes but not positive taxes increased maximization. Our second experiment showed that the positive effect of losses emerged even when the advantageous alternative was the only one that produced losses. The results of both experiments cannot be explained by loss aversion because participants got larger losses upon choosing the advantageous alternative, suggesting the effects may be driven by the increased attention due to losses. Experiment 3 was conducted to account for Thaler et al.'s (1997) finding of a negative effect of losses on maximization. We show that in an extremely risk averse sample (in Mechanical Turk) losses accentuate risk taking. Experiments 4 focused on the effect of losses on consistency in experience-based decisions. In these type of decisions, usually no loss aversion is manifested (Erev et al., 2008). The experiment was a longitudinal study in which tasks with primarily gains, losses, or a mix of gains and losses were performed in two separate sessions that were 45 days apart. Losses were found to have a positive effect on the consistency across sessions. This effect of losses on consistency was observed even while the participants did not exhibit loss aversion on average, suggesting that it is also driven by the attentional outcomes of losses.

Attention and Search in Decision Making

The impact of affect on decisions from experience

Clattern Lecture Theatre and Room JG0001*

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In decisions from experience (DFE), outcomes and probabilities are not explicitly described but have to be learned through experience. Thus, during the process of information search, it is important that sufficient information is sampled in order to accurately learn the (initially unknown) outcome distributions of the available options. What influences the search process in DFE? We propose that affect—a factor neglected for a long time in the field of judgment and decision making—has a substantial impact on DFE. In social psychology and cognitive neuroscience, positive affect reflects a ‘go-signal’, triggering top-down processing, whereas specific negative affects (e.g., fear) reflect a ‘no-go-signal’, triggering data-driven bottom-up processing. Further, positive affect seems to facilitate creative problem solving and cognitive flexibility, yet reducing the maintenance capacity in the working memory. We therefore predicted that positive (negative) affect leads people to acquire smaller (larger) samples, as well as to influence people’s search policy (more switching between options in positive affect, less switching between options in negative affect). Our data showed that participants experiencing negative affect sampled more ($M=52$) as compared to participants experiencing positive affect ($M=34$, $d=.59$). Also, participants experiencing negative affect switched less often between options ($M=16\%$), as compared to participants experiencing positive affect ($M=31\%$, $d=.51$). In sum, participants experiencing negative affect searched for information in a more systematic way: They searched longer and tended to stick with one option for a longer time before switching to the other option. This behavior led to the trend that these participants earned slightly higher final payoffs.

Jane Beattie Award Lecture

**Everything you ever wanted to know
about metacognitive fluency but were
afraid to ask**

Clattern Lecture Theatre and Room JG0001*

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Some types of mental processing feel more challenging than others, and it is well established that subjective metacognitive experience of ease or difficulty - otherwise known as fluency - can be used as information when making judgments and decisions. But fluency can also affect what other information we bring to bear, how that information is represented, and the types of cognitive operations we perform on that information. These indirect pathways by which fluency can influence judgment can lead to a host of counter-intuitive outcomes. In this talk, I review some of my work over the past 7 years on the varied ways in which metacognition impacts judgment, and the real world consequences.

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De Finetti Award Lecture**Agency and the construction of social preference: Between inequality aversion and prosocial behavior****Clattern Lecture Theatre and Room JG0001*****Shoham Choshen-Hillel**

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The term “social preference” refers to decision makers’ satisfaction with their own outcomes and those attained by comparable others. The present research was inspired by what appears to be a discrepancy in the literature on social preferences – specifically, between a class of studies demonstrating people’s concern with inequality (e.g., Loewenstein, Thompson, & Bazerman, 1989) and other studies documenting their motivation to increase social welfare (e.g., Charness & Rabin, 2002). We propose a theoretical framework to account for these puzzling differences. In particular, we argue that a characteristic of the decision setting – an individual’s role in creating the outcomes, referred to as agency – critically affects decision makers’ weighting of opposing social motives. Namely, in settings where people can merely judge the outcomes, but cannot affect them (“low agency”), their concern with inequality figures prominently. In contrast, in settings where people determine the outcomes for themselves and others (“high-agency”), their concern with the welfare of others is prominent. Three studies employing a salary-allocation paradigm document a robust effect of agency. In the high-agency condition participants had to assign salaries, while in the low-agency condition they indicated their satisfaction with equivalent predetermined salaries. We found that compared with low-agency participants, high-agency participants were less concerned with disadvantageous salary allocations and were even willing to sacrifice a portion of their pay to better others’ outcomes. We discuss the effects of agency in connection to inequality aversion, social comparison, prosocial behavior, and preference construction.

Reflections on Prospect theory

Clattern Lecture Theatre and Room JG0001*

09:00 - 10:00

Daniel Kahneman

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Prospect theory (Kahneman&Tversky, 1979) was proposed for a severely restricted domain: choices between monetary gambles with at most two non-zero outcomes and specified probabilities. It turned out to be much more influential than we expected when we wrote it, because some of its concepts were widely applied outside the domain of the theory. I reflect on this improbable history and on the distinct criteria that must be met for a theory of choice to be taken seriously by decision theorists and for it to be influential among other students of human choice.

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* Live video feed from The Clattern Lecture Theatre displayed in JG0001

Sampling and information search**An ecological analysis of search****John Galsworthy Building Room JG2007****Tomas Lejarraga**Carnegie Mellon University
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The sampling paradigm of decisions from experience reveals how individuals search for information about options before making decisions. Although samples are generally small (median of 7 per option), evidence suggests that they vary according to individual differences in short-term memory capacity (Rakow et al., 2008), rational ability (Lejarraga, 2010), mood (Frey, 2011), and opportunity costs (Hau et al., 2008). However, as Simon observed (1956, 1983), behavior results from the interaction of individual characteristics with the environment. And although the influence of individual characteristics on search is fairly understood, the influence of the environment remains unknown. We examined how the characteristics of the decision problems influence sample size in a number of published studies that used the sampling task, and in the Technion Prediction Tournament (Erev et al., 2010). Overall, we find a small but significant effect of the environment on search behavior. First, participants search longer among losses than gains, a behavior that is consistent with the observation that 'losses loom larger than gains'. Similarly, participants search longer when the desirable outcome is rare than when it is common. Finally, the largest effect on search effort was driven by variability experienced in early trials. When participants experience variability the first three trials, they tend to draw samples that are 50% larger than when they do not experience variability. We conclude with the observation that, when participants draw larger samples they are likely to perceive options as more similar than when they draw smaller samples (Hertwig & Pleskac, 2010). So the longer we search to avoid losses, undesirable, and uncertain outcomes, the more difficult the decisions become.

Sampling and information search**Comparability effects in probability judgments: Evidence for a sequential sampling process****John Galsworthy Building Room JG2007****Timothy Pleskac**Michigan State University
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Psychological theories of subjective probability judgments (SPs) typically assume that accumulated evidence (support) mediates the relationship between the to-be-judged event (hypothesis) and the SP (Tversky & Koehler, 1994). These theories make a strong assumption regarding the independence of hypotheses: the support garnered for a particular hypothesis is independent of the alternative hypothesis. However, over 50 years of work in psychology has demonstrated that the value we place on options depends on the options they are paired with. I will present results from a study where participants judged the likelihood of a bicyclist winning a simulated race. Each bicyclist varied in their sprinting and climbing ability. The results show that when making probability judgments the supporting evidence collected for why a bicyclist would win the race depended on the comparability of the two hypotheses, which in turn led to violations in the independence assumption. These results are consistent with a computational model of probability judgments called Judgment Field Theory (JFT). JFT assumes that when people are asked to make probability judgments they accumulate evidence over time. The evidence at each time point comes from attention dynamically switching between the attributes of each hypothesis. Markers-one for each probability estimate-are placed across the evidence space. When evidence passes a marker there is a probability the judge stops and gives the respective estimate. Besides accounting for violations of independence, JFT provides a single process account of a range of phenomena. More generally, JFT in combination with Decision Field Theory offers a single process account for judgment and decision making rather than a process for judgment and a process for decision.

Sampling and information search

Delaying information search

John Galsworthy Building Room JG2007

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We propose that people weigh the costs of having definite knowledge (uncover unpleasant truths) versus the costs of ignorance while incorporating future events into the equation. As a result, the decision to search or postpone searching for potentially unpleasant information is influenced not only by the painful nature of the information but also by the potentially negative effects that this knowledge may have on unrelated future plans, performances or events. Such analysis suggests that the timing chosen for exposure to potentially painful information serves as a means to regulate the intensity and amount of negative (and positive) experiences in life.

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Sampling and information search

Knowledge of statistical properties of numerical variables

John Galsworthy Building Room JG2007

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Since the early 1960s, researchers in the field of cognitive psychology have investigated to what degree man lives up to the norms of statistical theory (e.g. Spencer, 1961). The research has mainly focused on the extent to which people give estimates of descriptive statistics that are accurate and has mostly overlooked the fact that variables contain more information than that given by descriptive parameters. For example, how a variable is distributed may very well influence the way people use it in judgments and decisions. In fact, both economic theory (e.g. Engelberg, Manski & Williams, 2008) and recent Bayesian accounts of human cognition (e.g. Chater, Tenenbaum, & Yuille, 2006) presupposes that people deal with variables as if the distribution is known. Little research has, however, used controlled experiments to investigate what knowledge people have of such global properties of numerical variables. Consequentially, there has been little research concerned with; a) what factors that influences the knowledge of global statistical properties and b) to what extent people's judgments are influenced by such properties. In the two present studies we investigate these questions. The results suggest that people have fairly accurate knowledge of global properties of variables that they experience but that this knowledge is influenced by both informational load and what the actual distribution is. Further, when making predictions based on their knowledge of global properties people seems to be biased by an illusion of unimodality.

Sampling and information search**On the decision to explore new alternatives****John Galsworthy Building Room JG2007****Kinneret Teodorescu**The Technion- Israel Institute of Technology
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The decision between the 'exploration of new alternatives' and the 'exploitation of familiar alternatives' is implicit in many of our daily activities. How is this decision made? When will deviation from optimal exploration be observed? The current study examines exploration decisions in the context of a multi-alternative choice task. At each trial, the participants could choose a familiar option (the status quo) or a new alternative (risky exploration). The observed exploration rates were more sensitive to the common outcome than to the average payoff from exploration: the participants exhibit insufficient exploration in a 'rare treasures' condition, and too much exploration in a 'rare mines' condition. This pattern can be captured with the assertion that the decision to explore reflects reliance on small samples of experiences.

Sampling and information search

Sampling from social environments lead to apparent self-enhancement effects

John Galsworthy Building Room JG2007

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The way people assess their social environments plays a central role in their evaluation of their own life circumstances and consequently their willingness to spend or save, look for another job, or invest in their health. We investigate the accuracy of people's representations of the characteristics of the general population using a large probabilistic national sample. In accord with past findings of self-enhancement effects, we found a tendency to seemingly underestimate the quality of other people's lives. The tendency is stronger for people who themselves live in unfavorable life circumstances than for those who are better off, apparently suggesting a motivational explanation or a cognitive bias. However, for some characteristics we observe the opposite tendency, self-depreciation. We show that both effects can be explained by a simple ecological social sampling model. It starts from the assumption that people infer how others are doing based on a sample from their immediate social environment their family, friends, and others they meet on a regular basis. These sampling processes interact with the structure of the broader social environment, its underlying spatial and frequency distributions, and produce either apparent self-enhancement or self-depreciation effects. The model predicts empirical results better than other explanations of these phenomena. More generally, the social sampling model provides an account of how people represent their social environments, and highlights the importance of considering the interplay of cognitive processes and environmental structure when explaining cognition.

Financial DM I

A loser can be a winner: Comparison of two instance-based learning models in a market entry competition

John Galsworthy Building Room JG2008

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This paper presents a case for parsimony and generalization in model comparisons. We submitted two implementations of the same cognitive model to a Market Entry Competition (Erev, Ert, & Roth, 2010). This competition involved multiple four-persons and two-alternative (enter or stay out) games. Our model was designed according to the Instance-Based Learning Theory (IBLT; Gonzalez, Lerch, & Lebiere, 2003). The two implementations of the model assumed the same cognitive principles of decision making but differed on the assumption of homogeneity among the four participants: one model assumed homogeneous participants (IBL-same) and the other model assumed heterogeneous participants (IBL-different). The IBL-same model involved 3 free parameters, and the IBL-different involved 12 free parameters, i.e., three different parameters for each of the four participants. The IBL-different model outperformed the IBL-same model in the competition, but after exposing both models to a more challenging generalization test (the Technion Prediction Tournament), the IBL-same outperformed the IBL-different. Thus, a loser can be a winner depending on the generalization conditions used to compare models. We describe both models, their results, and we draw conclusion for cognitive modeling.

Financial DM I

Do investors put their money where their mouth is? Stock market expectations and trading behavior

John Galsworthy Building Room JG2008**Christoph Merkle**University of Mannheim
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People acting on their beliefs are a primitive to economic theory that has seldom been challenged. Portfolio theory assumes that investors form expectations about return and risk of securities and trade accordingly. We test this theory using a panel survey of self-directed online investors. The survey asks for return and risk expectation of these investors in three-month intervals between 2008 and 2010. We combine the survey data with investors' actual trading data and portfolio holdings. We find that investor beliefs have little predictive power for immediate trading behavior. However, portfolio risk levels and changes are systematically related to return and risk expectations. In line with financial theory, risk taking increases with return expectations and decreases with risk expectations.

Financial DM I

Transactional problem content in cost discounting: Parallel effects of probability and delay

John Galsworthy Building Room JG2008

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Four experiments investigated the effects of transactional content on temporal and probabilistic discounting of costs. Kusev, van Schaik, Ayton, Dent, and Chater (2009) have shown that content other than gambles can alter decision-making behavior even when associated values and probabilities are held constant. Transactions were hypothesized to lead to similar effects because the cost to a purchaser always has a linked gain, the purchased commodity. Gain amount has opposite effects on delay and probabilistic discounting (e.g., Benzion, Rapoport, & Yagil, 1989; Green, Myerson, & O'Quinn, 1999), a finding that is not consistent with descriptive decision theory (Kahneman & Tversky, 1979; Loewenstein & Prelec, 1992). However, little or no effect on discounting has been observed for losses or costs. Experiment 1, using transactions, showed parallel effects for temporal and probabilistic discounting: Smaller amounts were discounted more than large amounts. As the cost rises, people value the commodity more and they consequently discount less. Experiment 2 ruled out a possible methodological cause for this effect. Experiment 3 replicated Experiment 1. Experiment 4, using gambles, showed no effect for temporal discounting, because of the absence of the linked gain, but the same effect for probabilistic discounting, because prospects implicitly introduce a linked gain (Green et al., 1999; Prelec & Loewenstein, 1991). As found by Kusev et al. (2009), these findings are not consistent with decision theory and suggest closer attention should be paid to the effects of content on decision making.

Financial DM I

Is investment behavior influenced by changes in information feedback and investment flexibility?

John Galsworthy Building Room JG2008

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Assuming investors are loss averse, repeated risky investments are less attractive in myopic evaluation. A theoretical foundation for this effect is given by the behavioral concept of myopic loss aversion (MLA). The consequences of MLA have been confirmed in several between-subject experimental studies. According to the literature, the transferability of the effect into practice seems largely undisputed. In particular, it is assumed that investors adapt their behavior if feedback frequency and investment flexibility change. However, there is no (within-subject) experimental evidence for this conjecture so far. To close this gap we conduct the first analysis on MLA in which the degree of myopia is manipulated to change over time. For this purpose, our experiments are based on the study design of Gneezy and Potters (1997), but consist of two consecutive parts with different myopia manipulation. Controlling for a general tendency of subjects to increase investments over time as they get familiar with the experimental task, we observe that subjects which are manipulated to become less myopic show a significant increase in investment amounts when the treatment changes. Interestingly, subjects who are manipulated to become more myopic, do not decrease their investments after a treatment change. This suggests that investors can learn to aggregate return distributions over time and they will not lower their risk exposure simply because the feedback frequency and investment flexibility have increased. However, these results only hold true when integrating a time-lag after the change in myopia manipulation. Without time delay we observe a 'procedural status quo bias': subjects do not change their investments regardless of the myopia manipulation.

Financial DM I

**Stable context-dependent preferences?
The origin of market price-dependent
valuations**

John Galsworthy Building Room JG2008

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Individuals' internal valuations can be extremely sensitive to other prices. We set out to determine whether this sensitivity is of rational or irrational origin. Our findings suggest that it is neither due to rational inferences, nor due to true context-dependent preferences; most likely it is a mistake individuals make.

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Financial DM I**Sacred values, moral outrage and the moral limits of markets****John Galsworthy Building Room JG2008****Craig MacMillan**Macquarie university
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Philip Tetlock and colleagues (2000) have proposed the sacred value protection model (SVPM) to account for the fact that people often refuse to entertain the idea that monetary values can be assigned to certain objects or activities or that certain objects or activities can be traded in markets. However, Tetlock has also found that a substantial minority of people are willing to trade-off their sacred values when they are exposed to information that reframes taboo trade-offs as either routine or tragic trade-offs. He takes this to indicate that the boundary between the secular and sacred realms is quite permeable. However, he does not establish which reframing strategy is effective in getting people to change his mind. This study attempts to answer this question by exposing participants to information that reframes taboo trade-offs as either routine trade-offs, tragic trade-offs or both. The results indicate, contrary to the predictions of the SVPM that none of these reframing strategies were effective in weakening participants' commitment to their sacred values. In fact, for participants exposed to tragic reframing information their commitment to their sacred values as measured by their moral outrage increased. Further analysis revealed a key role for both their affective and cognitive reactions. Overall the results indicate that sacred values constitute a moral limit to the use of markets in society.

Judgment and choice over time**Can too much information make us lose track of time? The effects of cognitive load on the processing of frequency and duration****John Galsworthy Building Room JG2009****Isabell Winkler**Chemnitz University of Technology, Germany
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Previous studies that examined judgments of frequency and duration in humans found an asymmetrical relationship: While frequency estimates were quite accurate and independent of stimulus duration, duration judgments were highly dependent upon stimulus frequency. These results do not conform with those obtained in animal research, where an interdependency of frequency and duration was found, and they are also inconsistent with findings from brain research that indicate a common mechanism for both kinds of judgments. The present data suggest that the asymmetrical relationship between frequency and duration in humans is moderated by differences in cognitive load. In two experiments, participants processed stimuli presented with varying frequencies and durations. Moreover, we varied the cognitive load of the task either by manipulating the total number of stimuli (Experiment 1) or by presenting an additional task (Experiment 2), thus establishing conditions with high versus low cognitive load. Under low cognitive load, a high mutual dependency between frequency and duration judgments was obtained. However, when the cognitive load of the task was high, as was the case in previous studies with human participants, the mutual influence of stimulus frequency and duration on the respective judgments was significantly lower. Results will be discussed with respect to mechanisms underlying the processing of frequency and duration.

Judgement and choice over time

Predictions of what can and what will happen? A matter of probability or extremity?

John Galsworthy Building Room JG2009

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Studies of so-called 'verbal probabilities' have generally focused on the meaning of adjectives and nouns, like 'small probability', 'possible', 'likely', and 'certain'. But predictions of uncertain events are often described by verbs, in terms of what can or what will happen. How are they used by speakers, and what are they perceived to mean? Participants in four experiments were presented with distributions of variable product characteristics, and asked to generate or to evaluate natural, meaningful sentences containing either 'will' or 'can'. Will was typically associated with either low or intermediate numeric values, whereas can consistently suggested high (maximum) outcomes. For instance, laptop batteries lasting from 1.5 to 3.5 hours 'will' last for 1.5 hours, or for 2.5 hours, but they 'can' last for 3.5 hours. The same response patterns were found for both positive and for negative events. In will-statements, the most common scalar modifiers were 'at least' and 'about', whereas can-statements included 'up to' as the most frequent modifier. In a fifth experiment, participants were presented with completed can- and will-statements, and asked to interpret their meanings. The results showed that will indicates an outcome that may be 'certain', but more often simply 'probable'. Can means 'possible', but even can-statements are commonly believed to imply 'probable' outcomes. This could create a communication paradox since most speakers use 'can' to describe outcomes that due to their extremity are quite unlikely.

Judgment and choice over time**So when are you loss averse?
Testing the S-shaped function in pricing
and allocation****John Galsworthy Building Room JG2009****Tal Shavit**The College of Management, Israel
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A comparison of the pricing of short selling to pricing in a long position may lead to the conclusion that the differences stem from loss aversion. In this paper, however, we suggest that these differences may stem from the timing effect. In a long position, an investor pays a price for an asset and receives the proceeds from it at a later point. In a short position, an investor receives the proceeds from an asset and only later pays for the asset. Simply put, when buying an asset, decision makers must first pay money and only later receive the asset's outcome. In the short selling position, participants first receive money and pay for the asset later. The difference in the timing of the receipt of the proceeds gained from the investment may create a set of reference points that strongly influence behavior. We test and confirm these hypotheses in auction and allocation experiments with real monetary incentives. In the allocation task, participants reduced the final portfolio's risk in the loss domain while increasing its expected value in relation to the risky asset consistent with the mean-variance rule. In the pricing task, participants were willing to receive a lower expected value in the short position than in the long position with the same risk inconsistent with the mean-variance rule. Thus, we have demonstrated that the tendency to exhibit loss aversion depends on the situation.

Judgment and choice over time**Testing the memory-bias account of the planning fallacy: The effect of task similarity and familiarity on task duration prediction bias****John Galsworthy Building Room JG2009****Kevin Thomas**Bournemouth University
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The biased judgement of future task duration has been attributed to the inaccurate recall of previous task duration (the memory-bias account of the planning fallacy; Roy et al., 2005) rather than the neglect of such distributional information, as proposed by the inside-outside account of the planning fallacy (Kahneman & Tversky, 1979). This research sought to test the memory-bias account by manipulating factors that can influence memory for task performance (memory prompt, task similarity and task familiarity). In Experiment 1, participants (N = 60) performed two tasks that differed in their similarity to one another (essay and toy castle or document formatting) at two testing sessions, one week apart. The first task also differed in its familiarity. At the second session, predictions on the second task, which was familiar, were least biased when the first task was similar, suggesting that bias is reduced only when previous task performance is pertinent. At the first session, predictions were least biased when the task was unfamiliar, suggesting that bias is reduced when there is no memory of task performance to be inaccurately recalled. These findings were extended in Experiment 2 (N = 40), where feedback of the duration of the first task, which was familiar (essay) or unfamiliar (toy castle), was manipulated at the start of the second session, one week later. At the first session, predictions were less biased on the unfamiliar task. At the second session, predictions on the familiar task were less biased when feedback of previous task duration was provided. By highlighting the role of the similarity and familiarity of previous task performance in task duration prediction, these findings support and develop the memory-bias account of the planning fallacy.

Judgment and choice over time**The effect of military service on soldiers' time preferences ? Evidence from Israel****John Galsworthy Building Room JG2009****Eyal Lahav**Ben Gurion University
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The current field study compares the time preferences of young adults of similar ages but in two very different environments, one more dangerous and uncertain than the other. Soldiers, students and a control group of teenagers were asked to answer questionnaires regarding their time preference and risk aversion. In order to ensure similar test conditions for the soldiers and other young adults, we distributed the questionnaires to both groups when they were travelling on the train. This helped us to avoid a homogeneity choice problem (selection bias) that might be caused by choosing only soldiers from one troop. During mandatory service, soldiers live in a violent atmosphere where they face great uncertainty about the near future and high risk of mortality. University students and teenagers, live in much calmer environment, and are tested for performance only periodically. The soldier-subjects show relatively high subjective discount rate compares to the other two groups. Consistent with Haerem et al (2010) we also find that soldiers exhibit lower risk aversion than citizens. We suggest that the higher subjective discount rate among soldiers can be the result of high perceived risk in the army 'institution'.

Judgment and choice over time**The temporal discrimination effect:
An audit study in academia****John Galsworthy Building Room JG2009****Katherine Milkman**The Wharton School, University of Pennsylvania
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Through a field experiment set in academia (including 6,548 professors), we show that decisions about distant future events are more likely to generate discrimination against women and minorities than decisions about near future events. In our study, prospective doctoral students sought access to faculty either today or next week, and students' names were randomized to signal race (Caucasian, Black, Hispanic, Indian or Chinese) and gender. Caucasian males were granted access to faculty 26% more often than women and minorities when making requests for next week and received more and faster responses to their requests, but this discrimination was essentially eliminated in requests for access today. Our identification of a 'temporal discrimination effect' is consistent with the predictions of construal-level theory but inconsistent with neoclassical or hyperbolic discounting models, and it implies that subtle contextual shifts can dramatically alter discrimination against women and minorities.

Preferences and choices I**A measurement model of recognition in multi-alternative decision-making****John Galsworthy Building Room JG2010****Philip Beaman**University of Reading
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A model of the use of recognition in two-alternative choice (2-AFC) decisions (the r-model, Hilbig, Erdfelder & Pohl, 2010) is applied to new data-sets in which the framing of the question was changed and the number of alternatives expanded. Required modifications to the model include the introduction of two levels of knowledge and a recognition-inclusion rule, to account for choices in multi-alternative situations where more than one item is recognized. Conclusions drawn by Hilbig et al. (2010) regarding the widespread use of information other than recognition are broadly supported. However, to fit the data from multi-alternative choice, a substantial proportion of choices must also be based on recognition-alone at an early stage, in the formation of consideration sets. The implications for the role of recognition information in scenarios broader than simple 2-AFC situations, and the limitations of the model, are discussed.

References:

Hilbig, B. E., Erdfelder, E., & Pohl, R. F. (2010). One reason decision-making unveiled: A measurement model of the recognition heuristic. *Journal of Experimental Psychology: Learning, Memory & Cognition*, 36, 123-134.

Preferences and choices I

Application of the weighted-additive rule in preferential decisions: A cognitive-developmental approach

John Galsworthy Building Room JG2010

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A cognitive-developmental approach is rarely applied to the field of Judgment and Decision Making (cf. e.g. Klaczynski, Byrnes, & Jacobs, 2001; Reyna, 1996 for exceptions). Following Levin and Hart's (2003) approach of directly comparing child and adult decision making, we adapted the mouselab technique to assess pre-decisional information search and choices (Payne, 1976; for application with children: e.g. Davidson, 1996; Klayman, 1985). We present participants decision-related information in a 4 attribute x 3 option matrix. The given attributes differ in terms of their particular relevance for the preferential decision. The setting of the decision game ensures an age-independent understanding of these relevance differences. In the present study, we compared 3rd graders, 6th graders and university students (IV1) in terms of how they adapt to changes in the decision environment's relevance-structure (IV2 non-compensatory vs. compensatory environment) and salience-structure (IV3 most relevant information salient vs. not salient). Our results suggest that participants in all age groups consider relevance differences of information and also the environment's overall relevance-structure in both their information search and choice. Thus, this study shows that children as young as 8 years are not only able to search and integrate multiple pieces of information, but also consider relevance aspects to make informed and good decisions. However, we find that these competencies increase with age. Our salience manipulation had no effect. Identifying both conditions under which children's decisions are even more similar to those of adults as well as conditions under which larger age differences occur would further contribute to understanding decision making development.

Preferences and choices I

Relative theory of choice: Preference change for risky choices

John Galsworthy Building Room JG2010

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In three experiments we studied the extent to which theories of decision-making and memory can predict people's preferences. Studying risky decisions, we aimed to answer questions about human preferences, prompted by similarities between the leading economic theory Expected Utility Theory (EUT) and the leading psychological theory of human choice under risk - Prospect Theory (PT). People's behaviour in the face of risk implies that they judge and weight the probability of risky events in characteristic ways that deviate from EUT. Nonetheless, both EUT and PT frameworks share a common assumption: people's risk preferences and decisions under risk and uncertainty are independent of task. Accordingly, we studied (i) the lability of human preferences and their relation to choice justifications given in risky decision-making scenarios, (ii) the dynamics of preference formation for choice with monetary gambles and (iii) the limits of existing theoretical accounts (e.g., UT and PT) by contrasting them with a new theory of risky choice based on the impact of context, complexity and prior choices. The results of all three experiments are not anticipated by EUT, PT or experience-based decision research (Hertwig, Barron, Weber, & Erev, 2004). We found evidence that people do not have underlying preferences for risk; instead, context, complexity and prior choices determine preferences even when the utilities (risk and reward) of alternative options are known.

Preferences and choices I**Decisions based on whether benefits bring to mind cost: A new perspective for the sunk cost effect****John Galsworthy Building Room JG2010****Bernadette Kamleitner**Queen Mary, University of London
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Past cost can influence decisions even if they have no direct bearing on them. This 'sunk cost effect' is of practical importance since it influences managerial and private decisions. I argue that sunk cost effects depend on the widely unacknowledged assumption that decision makers mentally link past costs and future benefits when making a decision; in particular that benefits of an option bring to mind (past) cost. Previous research indicates that cost-benefit-associations vary depending on a number of factors situated within the decision maker and the decision context. Two studies tested whether cost-benefit associations and in particular benefit2cost associations actually influence sunk cost effects. Study 1 investigated the influence of trait and primed (via matching tasks) cost-benefit associations on 2 decision problems, a managerial investment problem and a choice between 2 leisure activities. Decisions on both problems were influenced by benefit-cost associations but not by cost-benefit associations. Primed and trait benefit-cost associations increased sunk cost sensitivity. Study 2 investigated whether trait cost-benefit-associations also influence actual behaviour. Participants were asked to build a puzzle and were offered to either keep the puzzle built or to get an alternative puzzle. The (sunk) cost of building the puzzle was manipulated via a computation task. In line with Study 1 only an effect of benefit-cost associations emerged. If sunk costs were made salient, participants with a strong tendency to establish benefitcost associations were significantly more likely to go for a new puzzle than participants with a weak tendency to establish benefit-cost associations. Implications for decreasing vulnerability to sunk cost effects are derived.

Preferences and choices I**Spoilt for Choice: The role of counterfactual thinking in the choice and reversibility paradoxes****John Galsworthy Building Room JG2010****Rebecca Hafner**University of Plymouth
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Contrary to popular belief many choice options and the ability to reverse one's initial choice are sometimes associated with decreased chooser satisfaction. Two studies investigated the role of counterfactual thinking (CFT) in explaining these paradoxes. Participants chose drawing implements from either a limited (6) or extensive (24) choice set (study one), or an expected reversible/non-reversible selection (study two). Following a drawing task, satisfaction with their chosen implement was rated under either high or low cognitive load to manipulate the availability of counterfactual alternatives. In Experiment 1 satisfaction was higher with limited vs. extensive choice under low load, replicating earlier work, and the number of counterfactuals generated mediated this effect. Under high load the pattern was reversed. Participants in Experiment 2 generated more counterfactuals when reversibility was expected under low but not high load and this partially mediated the impact of expected reversibility on revealed satisfaction. Implications for theoretical understanding of these paradoxes are discussed.

Preferences and choices I**The influence of psychological distance
on choosing between enriched and
impoverished options****John Galsworthy Building Room JG2010****Leah Borovoi**Israeli Institute of Democracy
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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).

Decision from experience**Decisions from experience and the potential of gentle rule enforcement****John Galsworthy Building Room JG2007****Ido Erev**

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This paper explores the conditions that determine the effect of rule enforcement policies that imply an attempt to punish all the visible violations of the rule. We start with a simple game theoretic analysis that highlights the value of gentle Continuous Punishment (gentle COP) policies. If the subjects of the rule are rational, gentle COP can eliminate violations even when the rule enforcer has limited resources. The second part of the paper shows that the understanding of the basic properties of decisions from experience can clarify the conditions under which gentle COP strategies are likely to be effective. The paper concludes with a review of experimental studies that explore the value of gentle COP policies in the lab, in an attempt to eliminate cheating in exams, and in attempt to reduce violation of safety rules in industrial settings and in hospitals.

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Decision from experience**Envisioning Rare Events: Distributional assumptions, biased learning, and systemic underweighting****John Galsworthy Building Room JG2007****Shellwyn Weston**NYU, Stern School of Business
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Numerous studies examine learning from rare events. In hindsight, the events studied were socially defined as rare on three conditions: low probability, high consequence, and low awareness (surprise). Importantly, construal of an event as rare plays a significant role in the aftermath of crises by increasing the likelihood that an event will be dismissed as an outlier, reducing the perceived need for organizational learning and changes in public policy. Yet, what is rare under a normal distribution may not be considered rare under a heavy-tailed distribution (Lampel et al., 2009). Accordingly, a merely unusual event may be considered a rare surprise if, a priori, the observer failed to make a correct distributional assumption (i.e. low awareness may be a consequence of Bell Curve bias). Prior to these studies, no empirical work has focused on the distributional assumptions, learning bias, and confidence of individuals making predictions regarding possible events in heavy-tailed settings. This paper introduces a new methodology, employing financial options theory (Black & Scholes, 1973), to elicit distributional assumptions using preferences for skewed derivatives payoffs in addition to using hypothetical future samples, wagers, distributional drawings, and quantile estimates. Overwhelmingly, subjects incorrectly assumed that the underlying random process in question was Gaussian, leading to superstitious learning (Levitt & March, 1988), economically irrational preference reversal (Fama, 1981), and overconfidence. These studies demonstrate that Bell Curve bias (a possible evolutionary default), incorrectly applied in heavy-tailed settings, may lead to the systemic underweighting (Kahneman & Tversky, 1979) of rare events.

Decision from experience

Over- and under-sensitivity to rare events: Distinct processes or similar experiences?

John Galsworthy Building Room JG2007

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Experimental studies of human reactions to low probability (rare) events reveal two pairs of apparently conflicting biases. The first, documented in studies on probability estimation, includes over- and underestimation of low probabilities; the second, documented in studies on choice behavior, includes overweighting of rare events in decisions under risk, and underweighting of rare events in decisions from experience. The original explanations for these four phenomena assume situation-specific psychological processes: conservatism and overconfidence for, respectively, over- and underestimation; prospect theory's probability weighting function and reliance on small samples for, respectively, over- and underweighting. The main goal of this paper is to improve understanding of these four phenomena as well as the relationships among them. To this end, we propose a model of sufficient conditions for the co-occurrence of the four phenomena (the simplest model we could find), and then examine in an experimental study why and when these conditions are likely to hold. Our model assumes that estimation and choice are both based on samples of past experiences in similar situations. Overestimation and overweighting are captured by the assumption that sampled experiences occur in situations that are similar but not identical to the current task, and underestimation and underweighting are captured by the assumption that the samples are small. The fundamental and counter-intuitive assumption of our model is that decision makers rely on samples of past experiences even when the accurate description of payoff distribution is available (and the sampling process does not add useful information). The experimental part of our investigation explores and clarifies the value of this assumption.

Decision from experience

Sample allocation in decisions from experience

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The purpose of the present research is to build on previous decisions-from-experience (DFE) research by addressing proportional sample allocation between options. That is, given a sample size N , how should a decision maker allocate samples between options? We prove that a decision maker with perfect prior knowledge of the population parameters should allocate p percent of all samples to the option with the lower population variance - where p ($<.50$) is defined as an inverse function of the square root of the ratio of the two population variances. However, participants in DFE tasks are not blessed with perfect knowledge of population parameters. Therefore, we suggest that DFE participants can pursue a two-stage sampling strategy. In the first stage (titled 'variance estimation'), participants sample (relatively) equally from both options. In the second stage (titled 'variance exploitation'), participants use the sample variance estimates obtained in stage 1 to act according to the normative sample allocation formula we proved. Finally, choices are made as a function of the intuitive test statistic calculated over all samples obtained in stages 1 and 2. Via simulation, we determined that the naive two-stage sampling procedure performs well compared to a normative benchmark - and even exceeds the benchmark under some conditions. We also found that the optimal length of Stage 1 is quite short - between 20% and 40% of the total sample. Preliminary experimental results suggest that participants are sensitive to sample variances in their sampling behavior. This is consistent with our two-stage model of an ecologically rational decision-maker.

Decision from experience

Unpacking decisions from description and experience

John Galsworthy Building Room JG2007

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The putative gap between decisions from description and decisions from experience (Hertwig et al, 2004) suggests that prospect theory risk preferences reverse if one learns lottery characteristics through a sampling process. Apparently this experience-description (E-D) gap shrinks but does not disappear when controlling for sampling error (Ungemach et al, 2009). In three initial studies we: (1) replicate a small but significant E-D gap using incentive-compatible consequences and a wider range of probabilities; (2) show that this result is not due to mere misunderstanding of the sampling regime or lack of confidence in always-experienced outcomes; (3) find EBDM-like preferences in decisions from description in which possible outcomes are described as cards of a deck from which one will later sample. This suggests that the residual E-D gap might be attributed to 'unpacking' of consequences in decisions from experience. Thus, two further studies show: (4) decisions from description are similar whether describing outcomes and probabilities (e.g., a 2/12 chance of getting \$150) or describing the outcome of a game of chance in a 'packed' manner (e.g., 'get \$150 if a 12-sided die lands 1-2; get \$0 otherwise') but both differ from decisions from experience and decisions from an 'unpacked' description of a corresponding game of chance (e.g., a table of possible outcomes listed by die roll); (5) Decisions from experience are similar whether participants sample outcomes directly as in the standard paradigm or sample cards of different colors whose associated outcomes are known BEFORE sampling, but differ from decisions in which participants sample cards of different colors then learn associated outcomes AFTER sampling, which are similar to decisions from description.

Decision from experience**When the quality of an abstracted rule determines the decision strategy: Rule- and exemplar-based reasoning in decisions from memory****John Galsworthy Building Room JG2007****Christine Platzer**University of Mannheim
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In multi-cue decision tasks, knowledge about cues that are related to the criterion can be used to decide between different alternatives. This knowledge can be cognitively represented in different ways. The kind of representation depends on the ability to abstract cue-criterion relations. If people succeed in abstracting cue-validities, rule-based strategies (e.g., Weighted Additive Rule, Take The Best) can be applied. Otherwise exemplar-based strategies can be used that are based upon the retrieval of similar exemplars (cue patterns plus criteria) from long-term memory. Previous studies have shown that for memory-based decisions, the presentation of an alternative cue format (value A or B) resulted in more exemplar-based reasoning, whereas presenting a common cue format (present or absent values) resulted in more rule-based reasoning. The aim of our research is to identify the crucial variable that explains why these two formats are related to distinct strategies. In Study 1 we found that knowledge about the cue direction is the crucial feature that distinguishes the two presentation formats. In Study 2 we show that the effect of presentation format on decision strategy is mediated by the quality of the abstracted cue-criterion relations.

Financial DM II

Axe the tax: Taxes are disliked more than equivalent costs

John Galsworthy Building Room JG2008

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Tax collection is critical for maintaining an organized society including roads and schools, as well as a broader range of government programs. However, consumers dislike paying taxes. Standard economic models assume this dislike of taxes is a rational reaction to monetary costs. Although a distaste for paying taxes could be rational on economic grounds, we show that this aversion extends beyond simply disliking the costs incurred and affects consumer behavior in counter-normative ways. We demonstrate the phenomenon of tax aversion in which the desire to dodge taxes exceeds the rational economic motivation to avoid a cost. Across 5 studies, we provide evidence that consumers have a stronger preference to save money when savings are related to taxes compared to when they are unrelated to taxes. Furthermore, we show that this tendency is most prevalent among those identifying with political parties that generally favor less taxation. Finally, we show that the greater tendency toward tax aversion among participants identifying with 'anti-tax' parties disappears when they consider positive uses of tax dollars. In contrast, considering either positive or negative uses has no effect on those identifying with 'pro-tax' parties. Our results show that people dislike taxes for reasons that extend beyond monetary costs, and relate to political and ideological factors. These findings have implications for consumers who may be economically biased when considering tax-motivated spending, saving, or investment decisions, for marketers who can effectively lure customers through 'tax-free' sales, for economists and policy-makers interested in accurately forecasting revenue generated or lost through changes in tax-policy, and for the government, focused on increasing taxpayer compliance.

Financial DM II

Irrational cynicism: When communication increases buyers' skepticism

John Galsworthy Building Room JG2008

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The assumptions of rationality assert that strategic concerns can be a barrier to conflict resolution even when the buyer values the good more than the seller. Yet behavioral research shows that human interaction can overcome such concerns through communication. We show that there is also a downside of this human interaction: cynicism. We focus on a seller-buyer interaction in which the buyer has uncertain knowledge about the goods for sale, but has a positive expected payoff from saying 'yes' to the available transaction. Across two studies, we show that most buyers accept offers from computer sellers, but that acceptance rates drop significantly when offers are made by human sellers who communicate directly with buyers. Study 2 clarifies that this effect results from allowing human sellers to communicate with buyers. The mere context of negotiated interaction increases buyers' attention to sellers' motives and, consequently, buyers' cynicism. Unaware of this downside of interaction, sellers prefer to have the opportunity to communicate with buyers.

Financial DM II

Money with personality: How we maintain, invest, and spend inherited money

John Galsworthy Building Room JG2008

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The unique nature of inherited money is reflected in financial decisions concerning the bequest. Cognitive, interpersonal, and emotional factors combine to affect the way people maintain, invest and spend inherited funds. A legacy originates in somber circumstances. It bears the 'essence' of the deceased and is suffused with our perceptions of and feelings toward the person who left it to us. In this sense, it is 'money with personality'. To maintain the personality of the previous owner, the money must be preserved and kept separate from other monetary sources at our disposal. We therefore hypothesize that people will be relatively reluctant to spend the inheritance, risk it, or mix it with other accounts. We suggest that in considering different uses for inherited money people take into consideration the lifestyle and value system of the benefactor, seeking possible uses of which they believe the deceased would have approved. We therefore hypothesize that spending decisions will be influenced by both the perceived characteristics of the purchase and the perceived characteristics of the source of funds and that this effect will be moderated by the nature of the relationships with the deceased. In four studies we show that (a): Given other resources, people are reluctant to spend inherited funds. (b): This reluctance is particularly evident with regard to 'frivolous' pursuits. (c): Spending patterns are moderated by the personality and lifestyle of the deceased. (d): Reluctance to spend the legacy on hedonic pursuits disappears given an unfavorable relationship with the departed. (e): In making investment decisions people avoid placing an inheritance from a beloved source at risk, but show no such consideration when the inheritance is from distant unknown relative.

Financial DM II**When one year feels longer than 12 months:
The impact of temporal frames and
personal relevance on financial estimates****John Galsworthy Building Room JG2008****Gulden Ulkumen**University of Southern California
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Decision makers are frequently called on to provide estimates of financial outcomes, such as personal spending or savings. Such estimates can influence major financial decisions such as whether to buy a house and when to retire. In this paper, we examine the effects of two important determinants of consumers' financial estimates: framing of the estimation period and the personal relevance of the estimation target. We find that holding objective length of time constant, temporal framing (e.g. one year vs. 12 months) influences the magnitude of personal financial estimates. Decision makers predict that they will spend more and save less for one year than for 12 months, and they discount a monetary reward more when it is delayed for 1 year than for 12 months. Ironically, these effects manifest only among those for whom financial thinking is more personally relevant. These effects happen because for personally relevant tasks, decision makers focus on goal difficulty ('Can I do this? Would it be too difficult for me?'), and perceive the 'year' frame as longer than the '12 month' frame. Since the discrepancy between the two frames is due to perceived duration, the direction of this bias depends on whether a longer duration is interpreted as a greater opportunity or a greater challenge. From a theoretical perspective, our findings challenge the commonly held view that cognitive biases are driven by lack of involvement with the task. Substantively, this finding suggests that more consequential financial decisions may, in fact, engender more pronounced temporal framing bias.

Financial DM II**Winning the battle but losing the war:
The psychology of debt management****John Galsworthy Building Room JG2008****Moty Amar**AOC and HUJI
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Shahar Eyal
Cynthia Cryder
Scott RickDuke University
IDC
Washington University
University of Michigan

Debt repayment decisions are critical issues for individuals and financial institutions. To explore these issues in an experimental setting, we developed a computerized game in which participant were saddled with multiple debts and required to manage them. In four studies, we show that people in such situations employ a 'close what I can' heuristic. That is, they pay-off the smallest debt first, while underweighting the interest rate. This tendency reduced when the ability to allocate money to small debts was restricted; implying that this heuristic stems from people's desire to feel a sense of tangible progress toward their ultimate goal.

Financial DM II**Private payment versus public praise:
Effects of reward type on energy
conservation****John Galsworthy Building Room JG2008****Michel Handgraaf**
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Financial rewards may have negative side-effects. These may be absent if more socially relevant rewards are used. We did a field experiment in which we used monetary vs. non-material and private vs. public rewards to stimulate energy saving. We measured energy consumption for a total of 13 weeks. As expected, public rewards worked better than private ones and non-material rewards worked better than monetary rewards. Differences persisted for 8 weeks after we stopped our manipulations. These are important results: they add to theorizing about the effectiveness of rewards and show that focusing on privately earned monetary rewards may be counterproductive.

Risk preference**Anomalies to Markowitz's hypothesis
and a prospect-theoretical interpretation****John Galsworthy Building Room JG2009****Marc Scholten**

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Markowitz questioned the assumption, routinely made in expected utility theory, that people are globally risk averse, meaning they will prefer a sure thing to a gamble with equal expected value. He hypothesized a fourfold pattern of risk preferences: Risk seeking for small gains and large losses, and risk aversion for large gains and small losses. Evidence from four studies questions the generality of this fourfold pattern. For gains, the majority changes from risk seeking to risk aversion for increasing stakes, as hypothesized. For losses, however, we observe different preference groups: Some change from risk aversion to risk seeking, as hypothesized, but others change in the opposite direction, still others are globally risk averse, and some are globally risk seeking. Moreover, the composition of these preference groups changes across choice tasks. For instance, the group that, as hypothesized, changes from risk aversion to risk seeking is larger when, as in Markowitz's analysis, the gamble involves a .1 probability of losing than when the gamble involves a .5 probability of losing. We show how prospect theory can accommodate these results if it makes non-standard assumptions about the elasticity of the value function and the elevation of the probability-weighting function. This prospect-theoretical interpretation is supported in our fourth study. Apart from the preference heterogeneity in losses, however, we observe a greater preference uncertainty in losses, as indicated by longer choice times and greater choice inconsistency. To accommodate these results, we discuss how prospect theory may be incorporated into decision field theory, thus blending the psychophysical approach taken by the former with the motivational approach taken by the latter.

Risk preference**Ex ante moral hazard:
Increased or decreased risk taking?****John Galsworthy Building Room JG2009****Job Van Wolferen**Tilburg University / TIBER
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Marcel Zeelenberg

Tilburg University

Many of the SPUDM attendants will have to travel to the Penrhyn road campus at Kingston University London, by car, plane, boat, and/or train in order to present their latest research. A significant proportion of these travelers is likely to have some form of travel insurance. Probably, they also have health insurance, car insurance, and more. In the Western world, (modest) risks tend to be over-insured and in fact, many countries oblige their citizens to buy some forms insurance (e.g., health care and/or liability insurance). Does insurance make responsible academics drive recklessly when they head for London? Does it make them smoke because they know they are insured? Economic theory predicts that they would, and these predicted increases in risk-taking as result of being insured are referred to as ex ante moral hazard. In studies on ex ante moral hazard, it is not clear why insured and uninsured people differ in their risk behavior. We present studies that suggest the difference between insured and uninsured individuals stem from carefulness (less risk-taking) by the uninsured individuals, rather than increased risk taking on behalf of the insured individuals. We measured how willing people were to take risk when they were insured, uninsured, or when insurance was not mentioned at all (control condition). We find that only the uninsured condition differs from the control condition, such that uninsured people are much less willing to take risk than insured people and those in the control condition.

Risk preference

Framing effects and cognitive reflection

John Galsworthy Building Room JG2009

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Recent evidence links individuals' levels of cognitive reflection (CR) with their decision making in a variety of contexts. Frederick (2005) pioneers a 3-item cognitive reflection test (CRT) and reports results linking CRT scores with risk and time preferences; individuals with higher CRT scores were associated with lower discount rates and higher/lower risk seeking for gains/losses. More recent studies have examined the link between CRT scores and individuals' susceptibility to succumb to a variety of behavioral biases including anchoring, conservatism and the conjunction and base rate fallacies (Oechssler et al, 2009; Bergman et al, 2010; Hoppe and Kusterer, 2011). This paper extends prior research to consider whether CR influences another robust behavioral anomaly; namely framing effects, in which individuals respond differently depending on whether a scenario is framed positively or negatively. Using a standard version of the framing problem (Kahneman and Tversky, 1981), in which the expected value of the "risky" option is equal to the "safe" outcome, we replicate the framing effect. This result is unaffected by CRT score, thus individuals high in CR also appear to succumb to framing effects. In a modified version of this standard problem we manipulate the expected value of the "risky" option such that one option is objectively superior to the other. We hypothesize that people with high CR will show a reduced framing effect. We find no evidence of a framing effect in this modified version and find that CRT score is a significant predictor of choice. While the intuitive response may be driven by the frame in the standard problem, in situations where there is an objectively superior option individuals with higher CR are more likely to overcome framing effects.

Risk preference**Mishap or justification? Whether segregating losses is bad or good depends on responsibility for the outcome****John Galsworthy Building Room JG2009****Dilney Goncalves**IE Business School
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A basic tenet of Mental Accounting theory is that losses are least painful when they are integrated. While individual components of losses can be interpreted as negative events and lead to greater pain, they can also be used as reasons to justify a loss. When people are accountable for a loss, they may automatically and unconsciously engage in rationalization processes that actually reduce the negative impact of the loss. In this case, describing the individual components of a larger loss may provide more potential reasons for justifying the loss, helping people rationalize and, ultimately, reducing pain. We propose that responsibility for a loss moderates the impact of loss segregation/integration on hedonic evaluations. In two studies we show that (1) segregating reasons has an effect on hedonic evaluations even if the monetary loss is integrated and, more importantly, (2) that whether segregating losses produces more pain depends on one's need to justify (responsibility) for the loss. People who are responsible for a loss have greater need to justify it and, consequently, feel better when the loss is segregated than when it is integrated. This research has important implications for mental accounting by defining the conditions under which losses should be integrated or segregated.

Risk preference

Risky framing effects in choices, ratings, and rankings

John Galsworthy Building Room JG2009

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Risky choice framing effects are usually tested with choices. However, the source of the framing effect might be that the constituent options are evaluated differently, or that the effect follows from the choice process itself. In order to clarify its source, we investigate the framing effect with different response modes: choice, rating, and ranking. The rating and ranking findings indicate that what is commonly called a risky choice framing effect is actually a framing effect on the riskless option only, while there is barely an effect on the risky option. Risky choice framing might therefore be better construed as a process of attribute framing which is independent of risk preference.

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Risk preference**Whose money is it anyway? Using prepaid incentives in experimental economics to create a natural environment****John Galsworthy Building Room JG2009****Tal Shavit**The College of Management, Israel
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Sapir College and Ben-Gurion University

Simulating a real world environment is of utmost importance in achieving accurate and meaningful results in experimental economics. A common method of creating this environment is by offering monetary incentives. In general, experimenters provide such rewards at the time of the experiments, which, we argue in this paper, may lead participants to make decisions as though the money they are using is not their own. To solve this problem, we devise a 'prepaid mechanism' to be used in experiments to create a natural environment in which participants who receive monetary rewards make decisions as if the money were their own.

Preferences and choices II**All stress is not created equal:
Comparing the effects of different
stressors on decision making****John Galsworthy Building Room JG2010****Joseph Johnson**Miami University
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We contend that the vast majority of laboratory research investigating decision making under stress suffers from two shortcomings. First, it has disproportionately and almost exclusively focused on the use of time pressure as an operational definition of stress. Second, these manipulations typically involved only limited precision (i.e., presence vs. absence, or low vs. high). The current research addresses the previous shortcomings by examining the effects of qualitatively different stressors using the same common decision task. We utilized multiple types of stressors in addition to time pressure such as cognitive load (dual-tasking), social appraisal (being closely observed for evaluation), social performance contingencies (partner-dependent payoffs), and process accountability (justifying decision processes). Each of these stressors was manipulated across multiple levels, allowing us to identify potential nonlinear effects not possible with only two levels of any particular stressor. In addition to determining the effects on choice outcomes, we also investigated the effect on underlying choice processes by collecting response times and tracking the information acquisition stream using an interactive eye-tracking procedure. The latter also allowed us to collect data on pupil dilation, which provided converging evidence for the effects of our stress manipulations. We present results from this comprehensive research design suggesting that different stressors not only lead to behavioral effects of different magnitudes, but also of qualitatively different types. Tentative inferences regarding the use of different strategies or processing styles across different stressful (or not) situations are discussed.

Preferences and choices II**Decision-making competence in adolescents with and without a paternal history of substance use disorders****John Galsworthy Building Room JG2010****Andrew Parker**
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As adolescents mature, they increasingly gain the autonomy to make their own decisions. Having good Decision-Making Competence (DMC) should help them to make better life decisions, seen in avoiding negative controllable life events. This paper examines the relationship between DMC and life outcomes in two groups of late adolescents, those with and without a family history of substance abuse. Data come from a unique longitudinal study that has been tracking boys and girls from age 10-12 through age 30. At age 18-19, participants completed the Youth Decision-Making Competence (Y-DMC) instrument, which includes six tasks that have been extensively studied in the judgment and decision making literature and that measure different aspects of good decision making. Overall, adolescents from families with a history of substance abuse had substantially worse DMC than did other adolescents. More importantly, DMC predicted obtaining more positive and fewer negative controllable life events (which presumably reflect individuals' decisions) while being unrelated to uncontrollable life events (which indeed should not reflect individuals' decisions), assessed 5-6 years later. These results held even after accounting for family history and other respondent characteristics. Our findings imply that interventions to improve decision-making skills may help adolescents to obtain better life outcomes, and are particularly important for children growing up in disadvantaged settings, including families dealing with substance abuse.

Preferences and choices II**Eliminating discomfort:
Managing decision difficulty through
pre-decisional shifting****John Galsworthy Building Room JG2010****Stephanie Carpenter**University of Michigan
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A study of 59 undergraduates examined whether shifting feature appraisals and dimensional importance weights over time to be consistent with a choice leaning (i.e., coherence shifting) reduced feelings of discomfort and decision difficulty. Physiological skin conductance responses (SCRs) were measured to assess discomfort experienced during the task. Participants rated the attribute desirability and importance weightings of two job offers at three different time points. Those who coherence shifted the most exhibited significantly lower SCRs than those who coherence shifted less, and coherence shifting was correlated with perceived decision difficulty following the choice. Correlations between desirability and importance also increased over time such that participants' evaluations on the two dimensions became more consistent with each attribute re-rating. These results were consistent with our proposed model that participants who coherence shift more resolve feelings of discomfort and perceived decision difficulty that arise from not having a dominant choice option available. This suggests that difficult decisions can produce feelings of discomfort, which some individuals resolve with pre-decisional coherence shifting.

Preferences and choices II**Extraneous factors in judicial decisions****John Galsworthy Building Room JG2010****Shai Danziger**Ben-Gurion University of the Negev
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Are judicial rulings based only on laws and facts? Legal formalism holds that judges apply legal reasons to the facts of a case in a rational, mechanical and deliberative manner. In contrast, legal realists argue that the rational application of legal reasons does not sufficiently explain judges' decisions and that psychological, political, and social factors influence judges' rulings. We test the common caricature of realism that justice is 'what the judge ate for breakfast' in sequential parole decisions made by experienced judges. We record the judges' two daily food breaks, which result in segmenting the day's deliberations into three distinct 'decision sessions'. We find that the percentage of favorable rulings drops gradually from approximately 65% to nearly zero within each decision session and returns abruptly to approximately 65% following a break. Our findings suggest that judicial rulings can be swayed by extraneous variables that should not influence legal decisions.

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Preferences and choices II**Metacognitive uncertainty and learning decisions****John Galsworthy Building Room JG2010****Pantelis Pipergias Analytis**Max Planck Institute for Human Development
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During study, people are uncertain in regards to the information that they will be able to recall at different points in time in the future. In order to make efficient learning decisions people must account for the uncertainty inherent in their own cognition as well as the possible future rewards that may result from their knowledge. On the basis of step reward functions, we model a goal choice environment and a time allocation environment. Implementing experimentally the 2 learning environments, we examine learners' decisions and we elicit their subjective probability judgments in respect to future recall events. We find that while learners' decisions are mostly well adapted, their probability judgments appear to be significantly biased. We discuss metacognitive heuristics such as memory for past test and accessibility that might account for our results. In addition we illustrate how step reward functions could be used to investigate further uncertainty immersed environments traditionally studied in Judgment and Decision Making and Psychophysics.

Preferences and choices II**The effect of expertise on risk taking behavior in a computer security context****John Galsworthy Building Room JG2010****Joachim Meyer**Ben-Gurion University of the Negev
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Noam Ben-Asher

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We study risk related behavior in a simulation resembling the use of a computer system that can be subject to possible attacks from malicious software. Participants in the experiment played a Tetris game in which they were rewarded according to the number of rows they completed and saved. Saving complete rows required time, which stopped the game (and prevented completing additional rows). Occasionally attacks could occur in which part of the squares on the screen were randomly deleted, causing completed rows to be incomplete again. Experimental conditions differed in the severity of the damage caused by an attack and the cost of taking protective actions (i.e., the time required to save completed rows). We analyzed participants tendency to take precautionary actions following an alert that indicates the possible occurrence of an attack. Participants took fewer protective actions when these were costly. Also, participants' skill in playing the game interacted with the damages caused by attacks, with the responses to alerts decreasing with skill when the damages were severe. Thus, the coping with risks depends on a combination of factors characterizing the risk and the risk taker, with more skilled participants taking greater risks. Different theoretical explanations for these results are discussed.

Clinical Reasoning

John Galsworthy Building Room JG0002

11:30 - 12:30

Convener

Olga Kostopoulou and York Hagmayer
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Discussant

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Studies on the decision making of clinicians in both medicine and mental health have shown that decisions are often only moderately reliable and prone to errors (Chapman, Bergus, & Elstein, 1996; Elstein, Shulman, & Sprafka, 1978; Garb, 2005; Kostopoulou et al., 2008; Poses, Cebul, & Wigton, 1995; Reyna & Lloyd, 2006). To understand these phenomena, recent research has focused on the cognitive processes underlying clinical judgements and decisions. Experimental methodologies are especially well suited to tap into these processes. The aim of the symposium is to present studies on a variety of aspects of clinical decision making using different paradigms. The symposium includes studies on memory, learning, information integration, and causal reasoning. Kostopoulou shows how early hypotheses about diagnoses can bias the evaluation and integration of further diagnostic evidence. Kim reports how the availability of a causal explanation affects judgements of normality in mental health diagnosis. Hagmayer investigates how assumptions about the causal mechanisms underlying a disorder, in addition to learning experiences, determine treatment decisions. Witteman reports how temporal delays between information acquisition and diagnosis affect classification and recall of clinical symptoms. The discussion will aim to identify open research questions and methodological issues for future research.

Clinical Reasoning**Causal vs. non-causal strategies
in diagnosis and treatment decisions****John Galsworthy Building Room JG0002****York Hagmayer**King's College London
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Katharina Mueller

University of Goettingen

Two of the most important tasks of clinicians are diagnosis and treatment choice. There are a number of theoretical models of the underlying cognitive processes. Three of these models (exemplar, cue-abstraction and causal models) were compared in the present study. We hypothesized that assumptions about the causal mechanisms underlying a disorder would affect treatment decisions for novel patients even when participants observed numerous other patients before. An experimental study was conducted which allowed to differentiate between the models. Students of clinical psychology were confronted with a fictitious, but plausible mental disorder and learnt about its diagnostic criteria, aetiology and possible interventions. Participants' assumptions about the underlying causal relations were manipulated by instruction in three groups. In a learning phase participants received information about the symptoms, diagnostic score, treatment and treatment outcome of 60 patients. The learning input was equally compatible with all causal assumptions. In two test phases (before and after learning) participants were requested to estimate the diagnostic score, choose one of two interventions, and predict the resulting outcome for novel patients. The results showed that causal assumptions strongly affected treatment choice but not diagnostic judgments. An exemplar model, a cue abstraction model and a causal model model were used to predict the choice data. The exemplar model and the causal model model fitted the data on the group level very well. However, only the causal model model predicted the differential choices obtained. These findings indicate that knowledge of the causal mechanisms underlying a disorder, in addition to learning experience, may affect treatment decisions.

Clinical Reasoning**Correctly remembering clients in mental health care****John Galsworthy Building Room JG0002****Cilia Witteman**Radboud University Nijmegen
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Marieke Tollenaar

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In two free recall studies, we addressed the question what the differences are in immediate and delayed recall of client information between mental health clinicians with different levels of experience, and how these recall differences are related to the accuracy of their diagnostic classifications. Clinicians were presented with two clinical cases, and were afterwards asked to give the appropriate classifications and to write down in as much detail as they could what they remembered of the cases, either directly or after one week. We found that very experienced clinicians remembered more abstractions when classifications and recall were given directly after having read the cases. The accuracy of the classifications was the same for all levels of experience, as was the amount of details recalled. After one week, very experienced clinicians remembered fewer details than the novices, and they classified worse. We discuss how the differences in recalled details and abstractions are associated with differences in performance, and we suggest implications for psychodiagnostic practice.

Clinical Reasoning**Do clinical psychologists intuitively extend the bereavement exclusion for major depression to other stressful life events?****John Galsworthy Building Room JG0002****Nancy Kim**Northeastern University
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In assessing cases of major depression, to what extent do clinicians interpret symptoms within the causal context of life events? Past research on clinicians' reasoning has shown that knowing a plausible life-event cause for a person's disordered symptoms makes the person appear more normal than if the cause was unknown (the understanding-normality effect). On the other hand, the current, 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) formally states that only bereavement-related life events should exclude a client from a diagnosis of depression, and the 5th edition (under development) of the manual proposes to eliminate the bereavement clause altogether. Our question was whether clinicians' judgments adhere to either of these formal DSM recommendations. We asked expert clinical psychologists to give diagnostic and abnormality judgments for realistic case study vignettes including a bereavement event, negative non-bereavement event, neutral event, or no event. Across all judgments, we found a robust understanding-normality effect for both bereavement and non-bereavement life event cases, indicating a departure from the DSM's recommendations (both current and proposed). For the first time, the understanding-normality effect was shown in diagnosis, cultural acceptability, and statistical normality judgments, in addition to global normality judgments. Implications for assessment and the clinical utility of the DSM's recommendations are discussed.

Clinical Reasoning**Information distortion in clinical diagnostic judgements****John Galsworthy Building Room JG0002****Olga Kostopoulou**King's College London
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Information distortion (changing the evaluation of new information to support an emerging belief) has been observed mainly with students making consumer and legal judgements. This study aimed to determine whether clinicians also distort information to support an emerging diagnosis.

Data were collected from GPs via an anonymous questionnaire. The 102 GPs in the experimental group read 3 patient scenarios. Each scenario started with 3 diagnostic cues that favoured 1 or the other of 2 diagnoses (the 'steer'). Respondents indicated their diagnostic belief on a 21-point VAS with the 2 diagnoses on either end. They were then presented with several non-diagnostic ('neutral') cues. After each cue, 1) they rated the extent to which it favoured the 2 diagnoses and 2) updated their diagnostic belief on the VAS. At the end of the final scenario, they rated 3 diagnostic cues that opposed the initial steer ('conflicting'). A control group of 36 different GPs rated the same cues but in random order and not as part of a scenario. Their mean cue ratings served as the baseline values for calculating distortion in the experimental group. Mean distortion was 1.50 ($p < 0.001$) and its size increased systematically with the strength of belief in the current diagnosis. Neutral cues were interpreted as favouring one's working diagnosis, while conflicting cues were underweighted. 76% of respondents maintained their initial diagnostic belief throughout seeing the neutral cues and 70% of these continued to do so even after seeing the conflicting cues. The study showed and measured information distortion in medical diagnosis. Clinicians considering different diagnoses may interpret the same information differently to support their diagnoses and resist changing diagnosis despite encountering conflicting information.



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Can Intuition Outperform Deliberation?

John Galsworthy Building Room JG0002

14:30 - 16:30

Conveners

Gaelle Villejoubert and Marlene Abadie

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Discussant

Robin Hogarth

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So-called two-system accounts of judgment and decision-making (Evans, 2008; Kahneman, 2003; Darlow & Sloman, 2010) contrast processes that are unconscious, fast, automatic, and independent of individuals' cognitive abilities with those that are conscious, slow, deliberative and constrained by working memory capacity. The role of the two processes in determining a final judgment is assumed to depend on the task complexity. It is often hypothesized that, although intuitive responses are faster than deliberate ones, intuition becomes ineffective in situations that are too complex and demanding in executive resources. The fact that biased judgments are observed when executive resources are burdened is often presented as evidence in favor of this assumption. An alternative view posits that intuitive thinking may in fact be better suited to deal with complex choices than deliberative thinking. According to the Unconscious Thought Theory (Dijksterhuis & Nordgren, 2006), biases in complex situations originate from the failure of deliberative thinking and its limited processing capacity. Similarly, Fuzzy Trace Theory (Reyna & Brainerd, 1995) posits that individuals hold both verbatim and gist representations of information in memory. Gist-based thinking is conceived as a more advanced form of thinking that is acquired as expertise develops and allows experts to make effective intuitive judgments whereas novices are constrained by detail-oriented deliberative thinking. Thus, within those latter theoretical frameworks, intuition is conceived as a more efficient process than conscious deliberation for dealing with complex problems. This symposium aims to bring together contributions reviewing evidence from both theoretical perspectives to shed light on this apparent contradiction.

Can Intuition Outperform Deliberation?**Deliberation without attention requires
fuzzy representations****John Galsworthy Building Room JG0002****Marlene Abadie**University of Toulouse, CLLE-LTC, France
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Previous research suggested that when people face a complex choice between several alternatives described by a large number of attributes, they are likely to make better decisions if their attention is distracted from the problem rather than being focused on it while they deliberate on the best alternative. The present study aimed (a) to establish whether a detailed or global presentation format of the alternatives would trigger different levels of mental representation and (b) to examine the effect of presentation format on decision quality following a period of deliberation with or without attention. Results revealed that a detailed presentation format led to better decisions when deliberation was conscious, while also demonstrating that this presentation allowed participants to hold precise verbatim representations of the different alternatives. In contrast, a global presentation format resulted in improved decisions when deliberation occurred during a distraction period, while participants' representations of the different alternatives were also fuzzier. Implications of dual-memory approaches for the study of decision-making will be discussed.

Can Intuition Outperform Deliberation?

Is it better to think unconsciously or to trust your first impression?

A reassessment of Unconscious Thought Theory

John Galsworthy Building Room JG0002

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Intuition is defined as gist-based reasoning: fuzzy, unconscious, but characteristic of distraction assumed to elicit 'unconscious thought'. Here, we suggest instead that the superiority of decisions made after distraction results from the fact that conscious deliberation can deteriorate impressions formed on-line during information acquisition. We found that participants instructed to form an impression made better decisions after distraction than after deliberation, thereby replicating earlier findings. However, decisions made immediately were just as good as decisions made after distraction, which suggests (a) that people had already made their decision during information acquisition, (b) that deliberation without attention does not occur during distraction, and (c) that ruminating about one's first impression can deteriorate decision quality. Strikingly, in another condition that should have favored unconscious thought even more, deliberated decisions were better than immediate or distracted decisions. These findings were replicated in a field study.

Can Intuition Outperform Deliberation?**Probability matching reconsidered from
an ecological perspective****John Galsworthy Building Room JG0002****Wolfgang Gaissmaier**Max Planck Institute for Human Development
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Lael Schooler

Max Planck Institute for Human Development

Recently, Koehler and James (2009; 2010) have argued for a dual systems account that assumes the choice anomaly called 'probability matching' to be a fast and effortless response created by the intuitive system (see also West and Stanovich, 2003). Yet, at odds with this perspective, there are findings showing that people are more likely to maximize if their cognitive capacity is low (Gaissmaier, Schooler, & Rieskamp, 2006; Wolford et al., 2004). These results suggest that probability matching can also result from effortful behavior, and one effortful strategy that has been detected to underlie probability matching is pattern search (Gaissmaier & Schooler, 2008). Hence, probability matching can result from both 'underthinking' and 'overthinking', which shows that merely attributing it to either intuition (or System 1) or deliberation (or System 2) could not possibly represent a conclusive account. Instead, a more complete understanding of probability matching requires the development of more precise theories about cognitive processes that can lead to this (epi-)phenomenon, and to understand in which environments those strategies will fail or succeed. Data from a range of studies will be shown to demonstrate that probability matching on the outcome level results from a variety of cognitive strategies. Importantly, each of those strategies has different cognitive requirements, and none of them is good or bad per se, but each is a good response to a differently structured environment. Thus, a more precise understanding of the cognitive strategies allows making testable predictions about where, when and why these strategies will be used, and where, when and why they succeed or fail.

Can Intuition Outperform Deliberation?

Evidence for two modes of thinking in preference

John Galsworthy Building Room JG0002

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Dual system models in the domain of reasoning concern deliberation and intuition, both systems of cognition. In contrast, dual system models in the domain of preference concern deliberation and affect, i.e., a system of cognition versus one that concerns emotional reaction. We examine whether these two types of distinctions are parallel by examining whether preference is subject to the same dissociations as reasoning. Preference ratings were obtained for fictitious products varying in their intuitive and deliberative appeal. In Experiment 1, effort was manipulated by varying instructions. In Experiments 2a and 2b metacognitive difficulty was manipulated by varying font fluency. Experiments 2a and 2b also assessed the effect of individual differences in tendency to deliberate as measured by the Cognitive Reflection Test (Frederick, 2005). In Experiments 3a and 3b participants were either asked to generate explanations about products or to report perceptual characteristics. In Experiment 4 cognitive load was manipulated using a working memory task. Greater deliberation was associated with instructions to deliberate, a high score on the CRT, explaining how the item worked, and the absence of cognitive load. Intuitive responding was associated with instructions to respond based on first impressions, disfluency, being asked to report a perceptual feature of the product and the presence of cognitive load. These findings, along with multivariate analyses across all of the experiments, suggest that there are two dissociable modes of thought that determine preference, and that products differ in the extent to which deliberation will enhance or diminish their appeal.

Can Intuition Outperform Deliberation?**Intuitive and unconscious cognitive processes in Fuzzy-Trace Theory:
An advanced approach****John Galsworthy Building Room JG0002****Valerie Reyna**Cornell University
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Intuition is defined as gist-based reasoning: fuzzy, unconscious, but characteristic of advanced reasoning. Based on experimentation and mathematical models, fuzzy-trace theory holds that gist-based reasoning: (a) is the basis for many (not all) heuristics and biases, and is the default mode; (b) is less subject to interference effects; (c) is generally independent of working memory capacity (executive processes such as inhibition are explanatory, not capacity); (d) increases with development (e.g., in experts); (e) is often unconscious. Reasoners engage in gist-based reasoning even when information is simple and visible (rather than to-be-remembered), as in framing problems or in the conjunction fallacy. If these principles are true, biases and heuristics should increase when gist representations are made more accessible, relative to verbatim representations. A series of experiments is presented testing this hypothesis. For example, in some experiments, judgments were made after a delay, when verbatim memory for probabilistic information was less accessible, but gist was retained. In other experiments, verbatim detail was omitted, and reasoners relied on intuitions operating on vague gist. In each experiment (on framing effects; conjunction and disjunction fallacies; and temporal discounting), subjects were asked about their confidence in their judgments. Confidence remained high when subjects committed fallacies or displayed biases (e.g., in framing problems), consistent with prior work on fuzzy-trace theory (i.e., gist-based reasoning operates unconsciously). Executive processes, such as inhibition, were associated with fewer fallacies and biases, as predicted by fuzzy-trace theory. However, as predicted, experts showed more biases than novices.

Judgement, heuristics and biases

When does cognitive control lead to biases? Evidence from memory and stock profit estimation tasks

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The dominant view of cognitive control in judgment and decision making is one where rule-based processes either compute answers or monitor and correct outputs of more intuitive processes. However, recent research has documented a surprising link between cognitive control and judgment biases (Cokely, Parpart, & Schooler, 2009), wherein higher levels of control led to a greater influence of fluency on judgments (e.g., a greater devaluation of the purchasing power of 10 Euros in the presence of a picture of unfamiliar (disfluent) money; an effect of name fluency on stock profit estimation). Theoretically, this link can be explained by differences in elaborative encoding: Higher cognitive control leads to more elaborate encoding and more detailed memory representations of cues in the environment which can result in greater biases when only few cues (i.e., fluency) are available. The current research presents new evidence for this elaborative encoding hypothesis by demonstrating a relationship between memory and bias in a stock profit estimation task. Specifically, participants had to judge the past company profit of fictional company names that varied only in their ease of pronunciation (e.g. Flinks vs. Aegeadux). Results reveal that participants with a higher reliance on name fluency (bias) for their judgments were found to have higher memory for the company names afterwards. Critically, company name recognition completely mediated the relationship between cognitive control and bias. These results are consistent with an elaborative encoding hypothesis and suggest a different, commonly neglected, early selection mechanism of cognitive control. Results furthermore remind us of the strong but unconventional link between heuristics and cognitive control.

Judgement, heuristics and biases**Heuristic bias, conflict, and rationality
in decision-making****John Galsworthy Building Room JG3004****Eric Schulz**University College London
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Human thinking is often biased by heuristic intuitions. Popular theories have argued that people rely overly on intuitive thinking and fail to engage in more demanding logical reasoning. However, the nature of the intuitive bias and logical thinking failure are poorly understood. It is not clear whether the bias results from a failure to detect that the heuristic intuitions conflict with more logical considerations or from a failure to discard and inhibit these tempting heuristics. We are addressing this fundamental problem with an interdisciplinary approach that combines reasoning research with insights from the memory and cognitive control field. By relying on a combination of experimental, developmental, and neuroscientific methods we managed to start characterizing the conflict detection and inhibition mechanisms during thinking. Our approach has demonstrated that conflict detection during thinking is remarkably flawless. Although people fail to inhibit tempting heuristics, they at least implicitly detect that their answer is not warranted.

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Judgement, heuristics and biases

Fast and frugal heuristics in food choice

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Scheibehenne, et al. (2007) investigated the usage of compensatory and non-compensatory strategies in lunch choices of German consumers. The authors compared the predictive strength of a complex weighted additive model to a simple Take the Best (TTB) rule. Although the former strategy integrates more information, both strategies predicted almost the same number of decisions correctly. We wanted to extend this approach of investigating food choices classifying compensatory (Weighted Additive, Equal Weights) and non-compensatory (Take the Best, Satisfising, Minimalist, Random) strategies. Two groups of participants were confronted with choices between dishes. Each dish was described with a name, picture, price and six nutrition values (fat, cholesterol,...). The dishes were presented using MouselabWeb so that the recording of the information acquisition process is possible. As a between group manipulation we depleted one group using a Stroop/Go-No Go task (in the framework of ego depletion, Baumeister, et al, 1998) and compared it to a control group. Using three different metrics (Transition Type, Time Ratio and Weighting, based on Riedl et al, 2008) we categorized each acquisition. A majority of strategies was classified as non-compensatory group (80.5%) in comparison to compensatory (19.5%) ones. Depleting participants resulted in a slightly stronger use of non-compensatory strategies, whereas an increase in the usage of compensatory strategies was found in the control group. Both effects were comparably small to the overall usage of non-compensatory strategies regardless of our manipulation. We conclude that non-compensatory heuristics play a much stronger role in food choice as the results by Scheibehenne, et al. suggest.

Judgement, heuristics and biases

Do people build option or strategy routines in multi-attribute decisions? Two tasks ? Two answers

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Although it has been shown that decision routines can be established at the strategy level as well as at the option level, the question about the spontaneous level of routinization has not been tackled, yet. In two experiments, participants learned to make multi-cue predictions for fictitious stocks or card game winners, respectively. In the routinization phases, choosing a specific cue combination strategy (Take The Best, TTB) or a specific option were equally successful. Hence, in this phase, no payoff difference between both routinization strategies existed. In a sudden environmental change, either the formerly successful strategy or the successful option failed, whereas the other response mode was still adaptive. Results were clear-cut in showing a preponderance of strategy-based routines in Experiment 1, but a dominance of option-based routines in Experiment 2 as inferred from dramatic drops in performance and decision times. This reliable difference between experiments may be attributed to important methodological differences, for example the open vs. traditional MouseLab methodology, the costs for information search in Experiment 2, or the interpretation of the task itself. Each potential factor is discussed, and ways for disentangling the explanations are developed.

Judgement, heuristics and biases**A concept of a platform for data-driven approach to detect cognitive biases****John Galsworthy Building Room JG3004****Aleksander Fafula**

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Cognitive biases often influence decision processes related to investment on stock markets. Mainly, these concern complex problems with perception and understanding of surrounding reality. This research was aimed to detect cognitive biases in the data-driven manner. A few basic cognitive biases are examined: gambler's fallacy, hot hand and cold hand effects. This paper presents a new concept of a platform which can detect specific users behaviours. Finally users evaluate algorithms and rules found. These are derived from observation of technical analysis indicators, as well as own built-in sensors. Along with the standard functionalities of a stock market simulator a few methods of data mining are applied: inductive decision trees, associations, clustering and visualization. Now, after two experimental market sessions on NASDAQ, some new features are introduced: 'live advisor for investors' suggesting a risk of occurring a particular fallacy, 'explain' - displaying rules found, with explanation, and finally - the ability to extend the trading platform for a larger group of scientists and individuals willing to take a place in scientific researches and educational simulation games. This is a work in progress and still under heavy development. First results are promising and indicate that there are patterns of behaviour hidden in the stock data and it is possible to detect them by rules. It is necessary to discuss this experiment with the wider audience, involving especially: psychologists, financial specialists and traders. This will enable the system to be extended and improved.

Judgement, heuristics and biases

Same world, different perceptions: Systems of measurement affect judgments

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Recent research has showed that semantically equivalent information can be perceived differently depending on the scales that describe such information. Building upon this literature, we propose and show that judgments depend on the culturally relevant system of measurement. Participants from two countries with different standard units (USA and Italy) were presented with an essay about gasoline efficiency. We compared satisfaction with a benefit (reduced gasoline consumption in Study 1a, increased distance covered if Study 1b) in presence vs. absence of measures. When measures were present, American participants considered them in the American system (gallons, miles) while Italians used the metric system (litres, kilometres). Since numerical variations are larger in the metric system than in the American system, we expected Italians to be more satisfied than Americans when benefits were described with measures. In both studies, in absence of measures participants' satisfaction with the improvements in gasoline efficiency (measured on 18-point scales) did not differ between Americans and Italians. In presence of measures, metric units induced significantly higher satisfaction ratings than American units, within both the reduced consumption scenario (Study 1a 16.4 vs. 14.7, $t(89) = -2.70$, $p = .008$) and the increased distance scenario (Study 1b, 17.4 vs. 14.0, $t(52.23) = -5.28$, $p < .001$). Our results suggest that systems of measurement affect people's evaluation of semantically equivalent information. The consistent use of different standard units might ultimately have a role in shaping cross-cultural divergences in how the public thinks and acts on global economic and environmental issues.

Judgement, heuristics and biases

Proximity, progression and probabilistic judgments

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Previous research on Proximity Heuristic (Teigen 2005) has shown that people tend to base their counterfactual probability judgments (e.g. Could I have been killed in that accident?) on simple cues such as spatial, temporal or numerical distance to a counterfactual outcome. Thus, after a horse race, the proposition 'the horse could have won the race' will be more convincing if the horse was beaten by merely the length of a nose than if by the length of a body. We extend this theorization by proposing that in the situation where multiple cues for proximity are available, people base their counterfactual probability judgments not only on momentary distance to a target outcome but also on the variation in the distance over time. That is, a trend of shrinking distance will inflate the judgments on counterfactual probability. We present two experiments testing this hypothesis. It was found in Experiment 1 that a horse, which has a weak start at the beginning of a race but then advances rapidly towards the leader, was considered to have been more likely to win the race than another horse, which consistently follows behind the leader throughout the race, despite that both horses stumble when they are neck-and-neck behind the leader. In Experiment 2, it was found that after flipping three coins on a computer screen with the objective to get identical values as the condition for winning (either three heads or three tails), the sense that 'I could have won' is stronger after the losing trial where the third coin failed to match the first two coins (e.g. head-head-tail or tail-tail-head), compared to other losing trials, despite in all losing trials, the participants were one coin away from winning, suggesting an order effect of events on counterfactual probability judgments.

Judgement, heuristics and biases

Familiarity drives the subadditivity effect: Evidence from semantic priming

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According to standard probability theory, the description of an event has no bearing on its judged probability. However, experimental results by Tversky and Koehler (1994) and by Rottenstreich and Tversky (1997) have shown that people judge the probability of an event, e.g. 'homicide' to be higher when the event's description is unpacked into a disjunction of component events e.g., 'homicide by an acquaintance or stranger'. The classic explanation of this 'subadditivity effect' has been that a hypothesis is better supported when individuals are reminded of salient disjuncts. A related explanation by Sloman, Rottenstreich, Wisniewski, and Hadjichristidis (2004) has underscored the necessity for disjuncts to be typical members of a category. The primary goal of the current study was to investigate an alternative explanation of the subadditivity effect: It is the familiarity of actions prompted by disjointed events (i.e. choice between alternatives) that drives people's support of a given hypothesis. To test this explanation, we examined whether disjuncts and conjuncts are sensitive to semantic priming in a self-paced reading task. We found significant priming for disjuncts, which supports our familiarity-based explanation: people's most frequent experience with disjunction contexts involves a choice between exemplars of a single category. Given that members of a category are alternatives of each other, and that disjunction involves choosing between alternatives, the priming effect inherent between category members is reinforced in disjunctive contexts. In contrast, we found no semantic priming for conjuncts. We interpreted these findings to follow from a failure to perceive conjuncts as alternatives.

Judgement, heuristics and biases**Eating with your mind: The impact of brand name and alleged method of production on perceived taste****John Galsworthy Building Room JG3004****Peter Sedlmeier**Chemnitz University of Technology
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Choosing food may be the most frequent kind of everyday decision people make. In two studies we focused on a decisive factor of food choice, the judgment of taste, and examined how it can be systematically influenced by two kinds of information: brand name (Experiment 1) and method of production (Experiment 2). In Experiment 1, we examined whether brand information leads to assimilation effects that might even reverse judgments of taste. We found that in a blind tasting condition, there was no difference in taste between two samples of a food item (e.g., potato chips), one a high-prestige and the other a low-prestige brand. However, if food items were presented with correct packaging, the taste of the high-prestige item was judged better than that of the low-prestige item, and when they were presented with interchanged packaging, the taste judgments also reversed. In Experiment 2, we examined whether information about food items can also elicit contrast effects. Participants tasted two pairs of food items (e.g., two apple slices and two pieces of banana). Of a given pair of food items, one was actually organically grown and the other conventionally grown. In one condition, participants (incorrectly) learned that the two food items were conventionally grown but came from two different places, and in the other condition, the correct information was given. It turned out that in the latter condition, the absolute differences in taste judgments were considerably higher; that is, participants 'exaggerated' the difference in tastes in that condition. In sum, the two studies showed that information about food items can have a strong impact on experienced taste and may yield either assimilation or contrast effects, depending on the kind of information given.

Judgement, heuristics and biases**Rhyme as reason in commercial and social advertising****John Galsworthy Building Room JG3004****Petra Filkukova**University of Oslo
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The study investigated whether the rhyme-as-reason effect applies for perception and evaluation of new artificially created advertising slogans. Rhyming and non-rhyming messages were compared in a between-subjects design. Separate groups evaluated on scales formal quality of the statements and content quality of the statements. For both commercial and social advertising, we found that rhyming messages are evaluated as more likable, more memorable, and more suitable for advertising campaigns than their non-rhyming counterparts. Moreover, the rhyming slogans were also perceived to be more persuasive, more truthful and people were more willing to follow their advice. In a more detailed analysis we found differences also with respect to the quality of particular rhymes. On the basis of the results of the questionnaire focused on formal aspects of the slogans, we divided the rhymes into 'good rhymes' and 'bad rhymes'. For both commercial and social advertising, we found that in comparison with bad rhymes, good rhymes were perceived as significantly more persuasive, more truthful, were of higher content quality and people were also more willing to follow their advice. All in all, research on the rhyme-as-reason effect seems to be interesting and fruitful and further investigations are needed.

Judgement, heuristics and biases**How framing and numerical information affect people's judgments when reading a newspaper story****John Galsworthy Building Room JG3004****Alessandra Tasso**University of Ferrara
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In the present study, we aimed at investigating what factors affect the judgments of a common reader when dealing with numerical information in news articles. Participants were asked to read a story about a man who died after hernia surgery and to assess the liability of the medical staff after receiving ambiguous numerical data based on percentages (i.e., 50% risk reduction), and again after receiving unambiguous data based on frequencies. The numerical information they were given was different in terms of framing (survival vs. mortality information) and numerosness of the reference class (small-1,000 vs. large-10,000). Results confirmed that: 1) judgements based on percentages were higher than judgements based on frequencies ($F(1, 159) = 41.842, p < .001, d = 0.46$); 2) judgments based on survival information were lower than those based on mortality information ($F(1, 156) = 16.441, p < .001, d = 0.64$); 3) judgments were lower in the small-numerosness than in the large-numerosness condition ($F(1, 156) = 4.693, p = .032, d = 0.33$); and 4) the frame and the numerosness did not interact ($p = .618$). Reporters should exhibit an increased sensitivity to the potential biases that influence the audience and be very careful about how they report news (Callison et al., 2009). However, on the basis of our results, we suggest that unambiguous numerical information may not be sufficient to de-bias a reader's conclusions, as ambiguous percentages appeared not to be the only factor that biased participants' judgments. Our results show that frame and numerosness had a strong effect, even when explicit numerical information was provided.

Judgement, heuristics and biases

Speculating from absent evidence: A Bayesian network approach

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The extent to which people speculate from absent evidence is an important issue for legal theory and practice. It also presents challenges to psychological theories of evidential reasoning. This paper proposes a Bayesian Network (BN) analysis of inference from the absence of evidence. We claim that the inferences people draw from absent evidence depend on their causal models of the case, and their explanations for the absence. Thus the same information about absence can be treated as incriminating, exonerating or neutral depending on which factors are considered the most likely explanations for that absence. An empirical study supported this analysis. Sixty participants were given an identical murder case, and saw the same incriminating evidence. They were all informed of potential eyewitnesses to the crime who were not presented at court. The reason for this absence was manipulated in three between-subject conditions: participants received 'incriminating', 'exonerating' or 'neutral' explanations. As predicted, judgments of guilt were driven by the explanations given for the absence of eyewitnesses: judgments of guilt increased with incriminating reasons, decreased with exonerating reasons and stayed the same with neutral reasons. Moreover, BN analyses based on participants' verbal explanations matched their probability of guilt judgments. This study confirms the value in investigating people's reasoning from absent evidence, and shows that different inferences can legitimately be drawn from the same absence, depending on assumed explanations. Such inferences cannot be explained in terms of logic alone, but fit naturally into the probabilistic BN framework. The findings have implications for psychological models of evidential reasoning, and for legal decision making.

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Judgement, heuristics and biases**Aversive feedback and incomplete knowledge in probabilistic inferences****John Galsworthy Building Room JG3004****Bartosz Gula**University of Klagenfurt
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Previous studies on the use of simple heuristics (e.g. Brader & Schiffer, 2003; Persson & Rieskamp, 2008) and on the learning of relevant knowledge typically involve simple, verbal and/or numerical outcome feedback and often assume perfect cue knowledge. Assuming that in everyday inferences feedback is likely to carry emotional valence and knowledge is likely to be incomplete, we explored the influence of both factors on information search, validity learning, and strategy choice. In Study 1, with either aversive (white noise bursts) or simple verbal feedback in a prototypical validity learning paradigm, we found no effects on the speed of learning but a tendency that aversive feedback amplifies the use of simple heuristics such as Take The Best (TTB). Contrary to the assumption that negative and arousing feedback would lead to more effortful processing, it appears to make it more selective. In Study 2, a cue value learning setup (Brader & Schiffer, 2003) was used before a memory-based two-alternative inference task about fictitious winners of the Academy Award. Incomplete knowledge was established by including systematically missing cue values in the learning phase. The results show that in decisions with missing information some participants consistently used less information than available but more than predicted by TTB. As an explanation, we suggest that incomplete knowledge increases decision uncertainty and motivates the pursuit of further evidence. It will be discussed how both, aversive feedback and incomplete knowledge, confine information search.

Judgement, heuristics and biases**Probability judgements and decisions weights under two different probability formats****John Galsworthy Building Room JG3004****Katarzyna Idzikowska**

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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 becomes 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 did not support this hypothesis. The second purpose for doing the study was to check whether the shape of the probability weighting function (in situation of pure risk) is related to findings in earlier studies on judgements 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.

Judgement, heuristics and biases**Facilitative effect of natural frequencies in Bayesian reasoning is not only about nested sets****John Galsworthy Building Room JG3004****Miroslav Sirota**University of Hertfordshire
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It is well known that people perform better in Bayesian reasoning tasks when the statistical information is given as natural frequencies rather than probabilities. However, the reason why natural frequencies improve performance remains a source of debate (individuation hypothesis vs. nested sets). We conducted three experiments to determine whether the nature of the mental representation of statistical information (as opposed to the format of presentation) explains performance in Bayesian tasks. In the first two experiments, the mental representation of chances and natural frequencies were identified by means of think-aloud protocols. Both experiments showed that participants performed better when the tasks were presented with natural frequencies rather than with chances. Most important, participants who translated chances into natural frequencies performed better than those who interpreted chances as a single event probability. The third experiment investigated the effect of two training manipulations on Bayesian performance. The first focused on nested sets and the second on transformation of probability into natural frequencies. The two training manipulations improved equally and substantially Bayesian performance compared to a control group. However, participants representing chances mentally as frequencies performed better than those representing chances as a single event probability. To summarize, explicit nested sets improved performance in reasoning task, but representation of chances as whole objects (i.e., natural frequencies) boosted performance even more. These findings support the individuation hypothesis and thus challenge the theory of nested sets.

Judgement, heuristics and biases**Sequentially simulated outcomes:
Kind Experience versus non-transparent
description****John Galsworthy Building Room JG3004****Emre Soyer**Universitat Pompeu Fabra
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Recent research has investigated differences in decision making based on description and experience. We address the issue of when experience-based judgments of probability are more accurate than those based on description. If description is well understood ('transparent') and experience misleading ('wicked'), it is preferable to experience. However, if description is not transparent, will valid ('kind') experience lead to more accurate judgments? We report two experiments. The first involved seven well-known probabilistic inference tasks. Participants differed in statistical sophistication and answered with and without experience obtained through sequentially simulated outcomes. The second experiment involved interpreting the outcomes of a regression analysis when making inferences for investment decisions. In both experiments, even the statistically naïve achieved accurate probabilistic inferences after experiencing sequentially simulated outcomes and many preferred this presentation format. We conclude by discussing theoretical and practical implications.

Judgement, heuristics and biases**More or less information is needed?
Evidence from a soccer prediction
experiment****John Galsworthy Building Room JG3004****Richard Szanto**Corvinus University of Budapest
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In this paper we wanted to investigate how forecasters evaluate and use information when they predict future events. In order to analyse this we designed an experiment where participants had to predict the results of matches of the Chilean Soccer League. We wanted to focus exclusively on information use; therefore in order to avoid the presence of recognition heuristics we chose a domain that was expected to be totally unknown to our Hungarian subjects. 286 undergraduate and graduate students of the Corvinus University of Budapest answered our questionnaire and made predictions about the final results of the matches. In our study it was confirmed that providing information about a given subject (Chilean Soccer Teams) makes forecasts better than chance. Yet, the relevancy of information provided does not matter: it was concluded that relevant information has not more forecasting power than irrelevant ones concerning decisions on results of an unfamiliar football league, even for experts. When the quantity of information about the soccer teams was raised, the scoring results were not improved at all in neither condition. The results suggest that after a certain quantity of information their presence does not necessarily help a layman forecaster. The experiments also revealed that the evaluation of information is highly subjective and it can be manipulated to a great extent: perceived significance of information used in decision-making depends on the set and type of information available.

Judgement, heuristics and biases**Biases and imperfect utility forecasts****John Galsworthy Building Room JG3004****Johannes Mueller-Trede**Pompeu Fabra University
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This paper investigates utility maximisation in which utility is subject to random errors. My basic premise is that if people strive to 'do whatever is best for them', they have to rely on psychological forecasts regarding how satisfied they would be with the different outcomes they can choose from when making a decision. I assume that these forecasts are unbiased but noisy, and show that unbiasedness is not sufficient to treat them as if they were accurate. Instead, maximising utility based on such imperfect, unbiased forecasts will lead to behaviour which is systematically different from the behaviour implied by maximising utility based on perfect forecasts. I then relate my findings to a number of psychological biases which have been interpreted as evidence for systematic errors in utility forecasts, which include the mis-predicting of adaptation, projection bias, diversification bias, and the evaluability hypothesis. Previous research shows that these biases can be thought of as resulting from systematic differences between what 'decision-' and 'experienced utility', or the expected enjoyment from a choice and its realisation. I show that this difference need not always be systematic, but that the observed biases can partly be explained by maximisation which is subject to random errors. My explanation works best for the diversification bias. It can partly explain experimental demonstrations of projection bias and the evaluability hypothesis, and fails at explaining the mis-prediction of adaptation.

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Judgement, heuristics and biases**Overview of drivers of affective forecasting in the consumer context****John Galsworthy Building Room JG3004****Theresa Stangl**University of Cologne
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Consumer decision making is partly based on the anticipated pleasure or satisfaction that different product alternatives may offer. However, such affective forecasts are error-prone because people are generally unable to foresee the future and have to predict their emotions as best as possible based on their present knowledge. This conceptual poster will pinpoint specific factors that influence affective forecasting in a consumer context. Drivers of affective forecasting will be categorized in respect to their occurrence in the process model of affective forecasting by Wilson and Gilbert (2003), that distinguishes three major phases: 1) Initial representation of an event. In a consumer context, this would correspond to a representation of a consumption situation. 2) Assessment of affective reaction to the event. In a consumer context, this would correspond to consumers reflecting on their emotions in the particular representation of a consumption situation. They can either recall a similar past event and use their feelings towards this event as a base for their forecast, or rely on theories about how the event will make them feel. 3) Affective forecast. In a consumer context, this would correspond to an overall assessment of their product-related future emotions. Consumers need to adjust their affective forecast for unique influences because the situation in which forecasts are made and the later usage situation will differ on several dimensions. The poster will highlight relevant studies in the consumer context and examine the specific aspects that need to be considered from a marketing and consumer policy perspective. These considerations will serve as a conceptual framework for future research on affective forecasting in consumer decisions.

Judgement, heuristics and biases**Perceptions of randomness:
The consequences of viewing
sequences sequentially****John Galsworthy Building Room JG3004****Ulrike Hahn**Cardiff University
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Given the acute ability of human beings to discern relevant structure in the environment (born out by science itself) and their well-documented sensitivity to the statistics of the environment, it seems puzzling that they have fundamental misperceptions (such as the Gambler's Fallacy) about the outputs of random devices such as coin tosses. How can it be that humans are so good at discerning structure given that they seem to readily impose structure where there is none? Hahn and Warren (2009) seek to resolve this apparent paradox by proposing that seeming biases reflect the subjective experience of a finite data stream for an agent with a limited short-term memory capacity. Once this aspect of people's actual experience of random generating processes is taken into account, 'errors' and 'biases' reflect people's subjective experience of environmental statistics. The talk provides a brief introduction to the account and then describes novel experimental data from sequence perception tasks. Hahn, U. & Warren, P.A. (2009). Perceptions of randomness: Why three heads are better than four. *Psychological Review*. 116, 454-461.

Judgement, heuristics and biases**The recognition heuristic and knowledge use****John Galsworthy Building Room JG3004****Philip Smith**University of Reading
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A source of contention in the study of the 'recognition heuristic' as a means of making criterion judgments between two alternatives has been the extent to which recognition alone is employed. The debate has largely centred on whether recognition is employed as a single sufficient cue when only one item of the alternatives is recognised, or whether further knowledge is consulted. Here, a simulation study is presented that examines the possibility that different types of knowledge might be involved when such decisions are made, and when more than one item is recognised. We develop statistics, based on a generalization of Pearson's phi coefficient, that enable us to observe under what circumstances it should be possible to detect use of the various sorts of knowledge. These statistics, which are applicable to multiple experimental situations, are validated by reference to simulations with known parameter values and applied to specific datasets from Frosch et al. (2007) and Hilbig and colleagues (Hilbig et al., 2010).

Judgement, heuristics and biases

The unreasonable persistence of cognitive biases: Why biases are not merely 'phantom information'

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This study examines the effects of endowed beliefs on wagers. Participants viewed horse races and bet money at multiple points throughout each race. Before the race began, each participant was endowed with a belief: either a track tipster's advice about a particular horse or a statement that the participant 'liked' that same particular horse but without a supporting reason. It was hypothesized that wagers made during the race by both groups of participants would exhibit an endowment effect compared to the valuations made by a control group of participants. Secondly, it was hypothesized that the effect on wagers of endowed beliefs based on feelings would appear as if the beliefs were based on real objective information. In other words, feelings would serve as a source of 'phantom information' and become integrated with accumulating evidence just as any other prior belief. Of particular interest were the wagers made before the race began, during the race at a moment when the two relevant horses were tied, and just before the end of the race. In a regression analysis predicting initial wagers, 'like'-endowed participants wagered more than control participants on the endowed horse, as did 'tip'-endowed participants. However, when the two relevant horses were tied during the race, only the 'like'-endowed participants maintain their biased wagers while 'tip'-endowed participants' wagers converged with control participants. The 'like' belief was utilized as if it had value and, due to the nature of belief updating processes, was not dismissed when integrated with observed evidence, unlike the 'tip' belief, which was based on an explicit, falsifiable reason. After the accumulation of evidence during the race, there were no further differences between groups.

Confidence, optimism, and time in JDM

Covariation estimates of continuous variables

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In the standard task of covariation judgments participants are presented with the value of two dichotomous variables on each trial. For example on one trial participants can observe that the sun is shining (X; shining/not shining) and that a person is happy (Y; happy/sad). After a series of such presentations participants are asked to judge the strength of covariation between X and Y and, in some cases, to what degree X can be said to cause Y. How people come up with their judgments have received a lot of attention in the literature, with suggestions ranging from the delta-P rule (Allan, 1980) to resnet Bayesian accounts (Griffiths & Tenenbaum, 2005). However, little concern has been given to whether the choice of dichotomous over continuous variables in itself influences covariation judgments. People tend to experience the world in degrees of dimensions rather than merely in on/off, yes/no categories and hence it is possible that the type of variable used in covariation judgment tasks could have influenced results of this research. In fact one previous study has suggested that dichotomizing two continuous variables might change people's perception of their covariation (Trollier & Hamilton, 1986). The present study investigates how covariation judgments are influenced by what variables are used and by what properties these variables have. The results suggest that people are sensitive to the actual correlation when making covariation estimates regardless of whether they are judging a continuous or a dichotomous variable. Further, people's covariation estimates for continuous variables are influenced by the statistical properties the variables have, suggesting the possibility to inflate or attenuate people's perception of covariation by linear transformation of variables.

Confidence, optimism, and time in JDM

Things you must believe to see: Existing knowledge dictates interpretation of covariation data

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In everyday life we are often exposed to causal claims stating a certain event produces a certain effect. For example a friend may ask you not to use a cellular while driving (the cause) since it may cause an accident (the effect) or an ad for an energy drink (E) may claim consumption improves IQ test performance. Sometimes, data on cause-effect covariation is available. Typically it includes information on the difference between the probability of effect occurrence in the cause presence (sufficiency) and its absence (necessity) (a difference known as ΔP). Sides wanting to support a causal claim do so with data indicating $\Delta P \neq 0$. For example, the marketer of E may provide study results in which 30 of 40 participants consuming E succeeded in an IQ test (sufficiency: 0.75), while only 20 of 40 who did not consume E succeeded (necessity: 0.5). Alternatively, sides wanting to refute E claim of superiority (e.g., a competitor) provide results in which sufficiency equals necessity (e.g., 0.75 for both). Here $\Delta P = 0$. In four experiments involving a variety of products, effects, contexts, and measures, we demonstrate that data supporting a causal claim ($\Delta P \neq 0$) are more persuasive when the proposed cause (for example, E) is compared to a referent differing in causal features (energy bar) than a referent similar in causal features (another energy drink). Process evidence indicates this is since individuals more easily generate reasons to explain target superiority in producing the effect in the former case. In contrast, the effectiveness of data refuting the proposed causes claim for superiority ($\Delta P = 0$) is not influenced by target-referent similarity. This appears to be since individuals tend to look for explanations only when an effect occurs.

Confidence, optimism, and time in JDM**Outcome evaluation:
winning vs. avoiding a loss****John Galsworthy Building Room JG3004****Jens Andreas Terum**University of Tromsø
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The present studies focus on the potential reward value of an avoid-loss situation. An outcome can be 'positive' because something desired is obtained, or because something negative or aversive is avoided. Previous research, using scenario-type evaluations, has established that both types of outcomes can be equally rewarding (Svartdal, 2011). The present research extends this finding to a situation involving direct experience with situational consequences. In two experiments, participants played a simple game where the objective was to accumulate as many points as possible. Half the participants experienced steadily increasing success (overall positive outcome), the other half experienced some success after an initial experience of failure (avoiding an overall negative outcome). Although the overall outcomes for the two groups were dramatically different, both groups evaluated the final outcome as equally positive. We argue that this similarity of judgment is possible because the two situations invoke different standards of comparison. A positive outcome can be contrasted to a range of counterfactual alternatives both for better or worse. The avoid loss condition more unambiguously invites a downward comparison. Consequently, avoiding a loss can be as rewarding as winning.

Confidence, optimism, and time in JDM**Overconfidence in judgment, valuation
and investment decision:
Bankers versus students****John Galsworthy Building Room JG3004****Veronique Bessiere**University of Montpellier 2
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Empirical research documents that overconfidence has a strong impact on investment decision. In this experimental study using a within-subject design and an asset allocation problem, we detail this relationship by introducing a stage of judgment (initial knowledge about the assets to invest in) and valuation (forecasts to be made) before the investment decision. We also examine the role of expertise by comparing a group of bankers (20 loan officers) and a group of students (65), control for the role of risk aversion, and implement different measures of overconfidence (miscalibration in two formats, BTA effect and illusion of control). Our results show that no differences could be observed between bankers and students in the degree of overconfidence, whatever the measures. However, overconfidence seems to determine decision making in a different way across the two groups. For students, we observe that overconfidence influences general tasks such as global knowledge about the asset but when it comes up to invest, risk aversion has a major effect. In contrast, bankers are strongly influenced by their overconfidence. For them, it mainly affects specific tasks (valuation and investment choices) but, surprisingly, risk aversion has no effect on investment decision. Our results suggest that introducing an assessment stage in the decision process helps to understand differences between expert and novices.

Confidence, optimism, and time in JDM

Higher height, higher ability: Judgment confidence as a function of building floor

John Galsworthy Building Room JG3004

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Based on the embodied view, we introduce an interesting possibility: spatial heights may regulate ability judgment. Specifically, when people are primed with a higher rather than a lower spatial height, they will unwittingly change their representations of ability and thus place more confidence on their answers to a general knowledge test. Consistent with our hypothesis, when seeing the ground from a higher floor, people increased their expectations about their performance on the test and assigned themselves higher rank positions in the peer comparison evaluation. These results suggest that people's ability judgment is not independent of spatial perception.

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Confidence, optimism, and time in JDM**Planning for the Planning Fallacy:
Causes and solutions for unrealistic
expectations about project delivery****John Galsworthy Building Room JG3004****Yael Grushka-Cockayne**

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It is likely that few were surprised when it was announced that the estimated cost of the aquatic centre being built for the London 2012 Olympic games had tripled (from £75 to £242 million), the expected date of completion was set back by two years, and its estimated size was reduced by almost two thirds. The media are full of stories in which projects underperform; cost too much, take too long, and deliver too little. Studies on representative samples of projects, both public and private, and in many different fields, show that the average project does underperform; Kahneman and Tversky (1979) refer to this phenomenon as the planning fallacy. We explore the psychological and managerial causes of the planning fallacy. Using data from a wide range of past projects, we operationalize and test Kahneman and Lovallo's (Kahneman & Lovallo, 1993; Lovallo & Kahneman, 200; Flyvbjerg, Garbuio and Lovallo's (2009)) outside view approach, by implementing reference class forecasting (RCF). To do so, we first identify generalizable project features which are likely to lead to faulty parameter estimation such as size of a project or the experience of the management team. We find that private projects are just as vulnerable as public ones to overruns and delays. Second, we demonstrate how RCF can assist project managers and planners in overcoming the fallacy and by producing better project outcome estimates.

Confidence, optimism, and time in JDM

Length effects in judgmental forecasting of various time series types

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The experiment examined forecasting performance when series of different lengths were presented to participants. The best forecasting occurred with the longest time series and an inverted U-shaped relation connected series length to accuracy. Furthermore, the version of anchoring and adjustment heuristic used to make forecasts depended on both series' length and series' type. For highly autocorrelated series people adjusted conservatively for all lengths while for seasonal, trended and random series they adjusted away from the last data point for long lengths.

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Confidence, optimism, and time in JDM**Elicitation task bias in intertemporal choice experiments****John Galsworthy Building Room JG3004****Oksana Tokarchuk**University of Trento
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In a series of experiments with real incentives I demonstrate that subjects' behaviour in experiments on time preference in the laboratory cannot be described by a stable preference relation. Elicited discount rates largely depend on the elicitation method. The present study compares discount rates elicited with the most frequently used in experimental research on time preference elicitation method: choice task in multiple price list format (MPL). I distinguish between nominal MPL structure and interest rate MPL structure. Discount rates elicited with choice task in MPL with nominal structure present hyperbolic pattern. While discount rates elicited with choice task in MPL with interest rate structure are compatible with exponential discounting. I claim that elicited discount rates depend on the elicitation method and propose an extension of Rubinstein and Salant (2010) model to explain the results.

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Cooperation, coordination and naturalistic DM**Credit decision-making in banks****John Galsworthy Building Room JG3004****Carl-Christian Tronnberg**Gothenburg University
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When searching through the literature of the credit approval process in banks we found that there are different traditions of how to handle this process. Different lending technologies seem to be used in different organizational sets. The literature also shows that bankers in many situations rely on intuitive ways of reasoning, although they have access to special designed computer programs for making credit decisions. The differences between computerized techniques which are based on strict financial information and relationship techniques based on soft information of the client are highly interesting as both techniques are used in modern banking. Therefore we are about to investigate how bankers make credit decisions. We set out to investigate which credit decisions that are perceived as difficult in interviews with Swedish bank loan officers by means of the critical incident technique, in what situations the decisions occur and why loan officers regard them as difficult. In addition, we will ask participants to rate on scales the degree of various difficulties with the decisions. Finally, we will also investigate what lending technologies that are used and how they are used by banks in connection with human decision-making. The results of the interview study will be reported at the meeting.

Cooperation, coordination and naturalistic DM

Information use and decision making by silver commanders in the emergency services

John Galsworthy Building Room JG3004

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This paper reports a study of decision makers in the UK emergency services. However, rather than examining individuals directly and personally engaging with incidents, it considers the behaviour of so-called 'Silver Commanders' who take charge when decision making is escalated because of scale, threat or complexity. Decision research usually focuses on understanding and supporting the decision process itself. However, a related and important dimension highlighted at the Silver level is Information. By looking at decision making and information together, can we understand decision making processes better? Mainstream decision research would normally see information and its use in as full and reflective way as practicable as critical to good decision making, System 2 rather than System 1. An exception is the stream of studies on recognition-primed decision making, itself originating in the study of fire-fighters. However theirs is typically direct operational decision making; here we have more tactical thinking, more people, more information and more time. The key initial findings suggest that Silver Commanders do not consistently adopt System 2 behaviour. While this might not seem so unusual, the paper argues that there are features of the Silver Commander decision making context that make it more surprising than it might appear. It sets out evidence in support of this assertion, reflecting on factors such as hidden time pressures; potential distraction of other, concurrent activity; expectations of leadership behaviour; and other factors. Finally, it returns to the inter-play between decision making, information and decision support to explore whether there are opportunities to influence behaviour by different forms of information provision or decision support.

Cooperation, coordination and naturalistic DM**An introduction to the Sandhurst
problem solving model****John Galsworthy Building Room JG3004****Mike Rennie**Royal Military Academy Sandhurst
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Officer Cadets at the Royal Military Academy are often accomplished problem solvers before they arrive. The challenge that the Department of Communication and Applied Behavioural science has, is one of helping the cadets become better, in what is one of the fundamental skills of officer-ship. To that end we developed a new model of thinking about the whole process of problem solving and decision making that illustrates the stages of assessing the information available, forming possible solutions and selecting a workable solution. These stages are easily mapped onto a number of problem solving tools, specifically the British military's 7 Questions, which allows leaders to assess and plan for battlefield decision making. It has been noted that the 7 questions can be applied to other areas of decision making with little adaption, such as in business (Franken et al 2010; Harvard Business Review). The model itself has been taught around the world and is being applied in a number of military settings. It allows the problem solver to break the process into several stages. At each stage the user can consider the psychosocial factors that may interfere good information processing and decision making. In short by being aware of the stages of the model, allows the problem solver to take a rational approach to the problem. Even when time is short being aware of the model should allow the problem solver to be aware of the issues with using intuitive problem-solving rather than a more considered thought through approach and lead to a better solution.

Cooperation, coordination and naturalistic DM

Theory of mind and the ultimatum game: An investigation into the development of young children's performance

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In a study of Ultimatum Game (UG) performance in relation to theory of mind (ToM) ability, 82 Reception and Year 1 children, randomly allocated to Experimental and Control conditions, were assessed on first-order false belief ability. Using a microgenetic approach, participants played as Responders in the UG over four sessions. ToM ability was assessed again on the final occasion. Experimental condition participants were asked each time to reason upon their performance, including consideration of offers they would make as Proposers. Scores applied to ToM and UG performance provided data for quantitative analysis. Participant verbalizations were also recorded, yielding data for categorical analysis to support statistical findings and provide further insight into performance development. Over 50% of Experimental condition participants attempted to achieve a 50:50 split both as Responders and in considering offers they would make as Proposers. Many references to shares being 'equal' or 'the same' indicated the influence of outcome upon decision-making. Several participants made offers of over 50%, their verbalizations showing altruism or a desire to please: further evidence of the importance of outcome in their decisions. Utterances from two thirds of Experimental condition participants also revealed consideration of Proposer's intentions in decision-making, varying from inferred dissatisfaction at the Proposer taking a majority share, to appreciation that the Proposer's offer would increase their own gain from zero, to clear assertion of the importance of sharing equally. This novel approach in facilitating focus on a) specific influential factors and b) within a very specific target population, is expounded and offered as the way forward for future research.

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Cooperation, coordination and naturalistic DM

Prevention focus fosters trust

John Galsworthy Building Room JG3004

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This paper reports findings from a trust game experiment, where we manipulated regulatory focus (prevention/promotion), and controlled for trust attitudes. Prevention focused trustors gave significantly more money to an unknown trustee. This effect remained when controlling for differences in self reported generalized trust. We argue that responsibility-mindedness which drives prevention focus, draws on a generalized feeling of community, which fosters cooperation.

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Cooperation, coordination and naturalistic DM**Moral self-licensing and moral cleansing effects in public good games****John Galsworthy Building Room JG3004****Laurent Waroquier**Université Libre de Bruxelles
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Moral cleansing occurs when past immoral behaviour makes people more likely to behave morally. This effect would take place because dubious behaviour threatens people moral identity that has to be reaffirmed. By contrast, moral self-licensing occurs when past moral behaviour makes people more likely to behave immorally. This effect would take place because performing good deeds established people moral identity and thereby licenses subsequent immoral behaviour. Here we will prime participants with either positive, or neutral or negative words in order to manipulate participants' perception of moral self-worth. They will then participate to a public good game in which they will have to choose between maximizing their personal profit or preserve environment. The incentives will be real: participants will either receive some cash or make a donation to a pro-environmental association. The game will be played in small groups and will consist in a series of trials. Participants will receive a feedback about the behaviour of other members of the group between trials. We hypothesize that participants will be more likely to maximize their profit and less likely to make a donation in the positive priming condition than in the other conditions. In the negative words condition, we hypothesize that participants will make the largest donation and thereby minimize their personal profit.

Cooperation, coordination and naturalistic DM

Giving: A conformity heuristic?

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Giving: a conformity heuristic? 112 students were assessed for social desirability pre-experimentally. At a subsequent session they were divided into two groups (determinate / indeterminate). Two 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 or a computer partner. Game 2) A charitable-giving game was played in which a participant decided how much of her money to give to a specified charity. The research intended to investigate if trait social desirability correlated with increased generosity to others, and whether that correlation would be increased or decreased when conditions were indeterminate (unspecified recipient) compared to determinate (specified recipient). Social desirability did correlate with generosity but only when recipients were unspecified (indeterminate).

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Cooperation, coordination and naturalistic DM

Environmental sampling in social dilemmas? The impact of rare events

John Galsworthy Building Room JG3004

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In order to understand why and when people cooperate in a social dilemma, much research has focused on social uncertainty. Yet, even if all people cooperate, collective efforts are exposed to exogenous risks (e.g. economy, natural catastrophes). In line with this, studies have started to investigate the effect of exogenous risks on social dilemmas by presenting people with probabilities of possible outcomes and found contributions to decline even further, aggravating the 'tragedy of the commons'. Often however, people base their decisions on their personal experience of risks. Recent research in risky choice highlights that it matters how people learn about the likelihoods of different outcomes: if people decide based on probability statements (decisions from description), they appear to overweight rare events (<25%) in line with Prospect Theory. If people sample the likelihood of a rare event (decision from experience), their choices appear to underweight its occurrence. We investigate the effect of how people learn about rare events on cooperation rates in a stochastic Prisoner's Dilemma without feedback. The following hypotheses are tested: (a) If there is a rare event with undesirable implications, cooperation rates in the experience condition will be higher than in the description condition. (b) If the rare event has desirable implications, the choice pattern will be reversed. (c) The effect holds only for rare events (< 25%) and is amplified the smaller the probability of the rare event is. The study highlights the importance of how people learn about likelihood of exogenous risks for cooperation in social dilemmas. Importantly, if risks are small, cooperation based on personal experience may be more likely than previous laboratory experiments suggest.

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