



SPUDM 2023

SUBJECTIVE PROBABILITY, UTILITY & DECISION MAKING

August 20 – 24, 2023

Welthandelsplatz 1, 1020 Vienna, Austria



MEETING
DESTINATION

NOW ♦ TOGETHER



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WELCOME TO VIENNA

Dear Conference Attendees,

We warmly welcome you to Vienna, a city where the threads of history seamlessly blend with today's energy and life. As we all meet in the centre of Europe for [SPUDM 2023](#), we are here to offer you essential information to make navigating the city effortless.

BASIC INFORMATION

Vienna is a very welcoming city to spend time in. You should have no trouble getting around even if you do not speak German, since most people speak English. The currency accepted is Euro, and many banks offer currency exchange. There are no roaming charges if you use a sim card from any of the EU countries. In case you want to buy a contract-free sim card, they are available at practically every grocery shop.

INFRASTRUCTURE AND AIRPORT TRANSFER

Vienna's public transport is highly efficient! There is no need for a car to get around the city during the conference. Here is a short overview of popular options to get around the city!

For all purposes of city navigation, ticket buying, bike renting – we highly recommend you download an app: [WienMobil](#)

Public transport (WienerLinien)

There are some single ticket options, but the weekly ticket for [public transport](#) should cover all your mobility needs (including airport transfer). We recommend the subway trains (U-Bahn) for quick and easy city travel. You can easily buy your ticket online or from the ticket machines at all metro stations.

Taxi/Car Transport

Bolt: "Request in seconds, drive in minutes." Download the app for free ([Google Play Store](#), [Apple App Store](#)) or [request a ride online](#) to get comfortably around the city. Bolt is much more than a transport provider – in addition, you can also rent e-scooters or get a food delivery.

FreeNow: Order a taxi, book a rental car, e-scooter or car sharing in Vienna. Download the free app ([Google Play Store](#), [Apple App Store](#)) and take a ride!

Taxi: When getting from A to B, you can also make use of some independent taxi providers. If you wish to use this option, you can find a comprehensive list with contact details [here](#).

WELCOME TO VIENNA

Renting a bike

WienMobil Bike: The bike sharing service of WienerLinien. A very affordable option to opt for when the weather is nice - starting at 30 cents for 30 minutes! Bikes are located throughout the city and directly at the WU Campus.



1. Download Nextbike app for free ([Google Play Store](#), [Apple App Store](#)) before the conference.



2. Scan QR code
Scan QR code directly on the bike with the nextbike app and unlock.



3. Drive off
And you're ready to go.



4. Park & pay
Park the bike at the next WienMobil bike station. The rental is automatically ended with the locking of the frame lock & charged directly in the app.

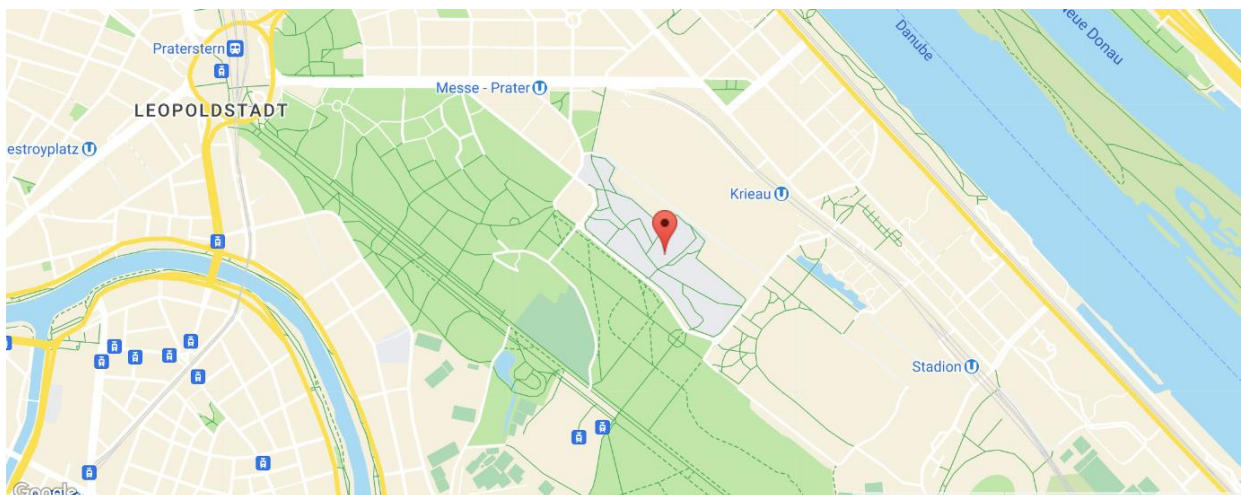
CONFERENCE LOCATION

The conference will take place in the second district of Vienna, at the [WU Campus](#).

If you are travelling from the city centre, we recommend you take the U2 Line. The closest station to the conference site (WU Campus) is "Messe Prater".

To get from the Vienna International Airport, you will have a short 20-40 minute ride to the centre or the conference site. You can travel by:

- **Train:** Take the REX7 Train to station "Wien Praterstern". Then, take the U2 to "Messe Prater".
- **Taxi:** An approximately 30min ride from the airport for ca 42 €.



WELCOME TO VIENNA

Library Center (LC) @WU Campus

One of the most iconic buildings of the WU Campus. This is where the Sunday Reception & all Keynote Lectures will take place. See the map below for exact location.



Teaching Center (TC) @WU Campus

Located next to the Library Center, this is where all Parallel Sessions of the conference will take place. See the exact location on the map below.



WU CONFERENCE LOGIN

Wi-Fi-SSID: wu-conference

Username: wu0032

Password: 6Zp;emmK2o

WELCOME TO VIENNA

WHAT TO DO, OUTSIDE OF CONFERENCE HOURS?

Here are some suggestions for your off-conference schedule time in Vienna.

- **Park:** The [Prater Amusement](#) park is a short 5-min walk from the conference venue. It features adventurous rides and games, ideal for JDM researchers who need more adrenaline than a conference-day can give! Afterwards, we recommend dinner at the world's largest organic food restaurant, [Luftburg](#).
- **Beach:** Pending nice weather, we suggest a trip to the [Copa Beach](#) at the Danube. It is not far away from our WU Campus, and you will appreciate kicking off your shoes for the sandy shore after a conference day. It is a beach. You can swim here. Just saying.
- **Museums:** Vienna is the place for your traditional cultural experience; in fact, there are more than 100 museums that you can visit! [Albertina](#), [Belvedere](#) and [Weltmuseum Wien](#) are the all-time classics, but you can also check out some unique collections such as the [Chimney Sweep](#), [Sigmund Freud](#) or [Coffee](#) museums!
- **Concerts:** In case you arrive earlier to the conference, on Saturday (19.08.), we recommend checking out the [Deutschmeister Concerts](#) at the [Schönbrunn Palace](#) at 11AM. Apart from the usual inner-city culture places, we also recommend to visit the open-air-festival "[Afrika Tage](#)", which will take place at the [Danube-Island](#) close to SPUDM venue, and will feature music and performance acts every evening.
- **Coffeetime:** Since you are visiting the city of "coffeehouse culture", it's worth to spend some time with good tasting coffee. Some of these places here are known to have good taste: [Viennese Coffee Roastery](#), [CoffeePirates](#), [Café Jelinek](#), or the traditional [Café Demel](#) or [Café Central](#) in the city centre.
- **Bar & Dance:** If you are into exploring the city at night, you will find plenty of places offering stacked bars and dancing floors. We recommend [MuseumsQuartier](#) or [Tanzcafe Jenseits](#).

For more inspiration on how to enjoy Vienna as both a local and a tourist, we recommend you check out this [website](#).

Coordination Device:

In case you want to bundle with the other SPUDM participants, we recommend the following plan:

- **Monday 20th:** Check out the rides at [Prater Amusement](#) park, and have dinner at [Luftburg](#).
- **Wednesday 22nd:** Come together for drinks at the [Copa Beach](#), after the conference day.
- **Thursday 23rd:** Visit [Afrika Tage](#) at the [Danube-Island](#). [Phoenix](#) will perform live from 22h.

We hope your time in Vienna is filled with inspiration, networking, and memorable experiences.

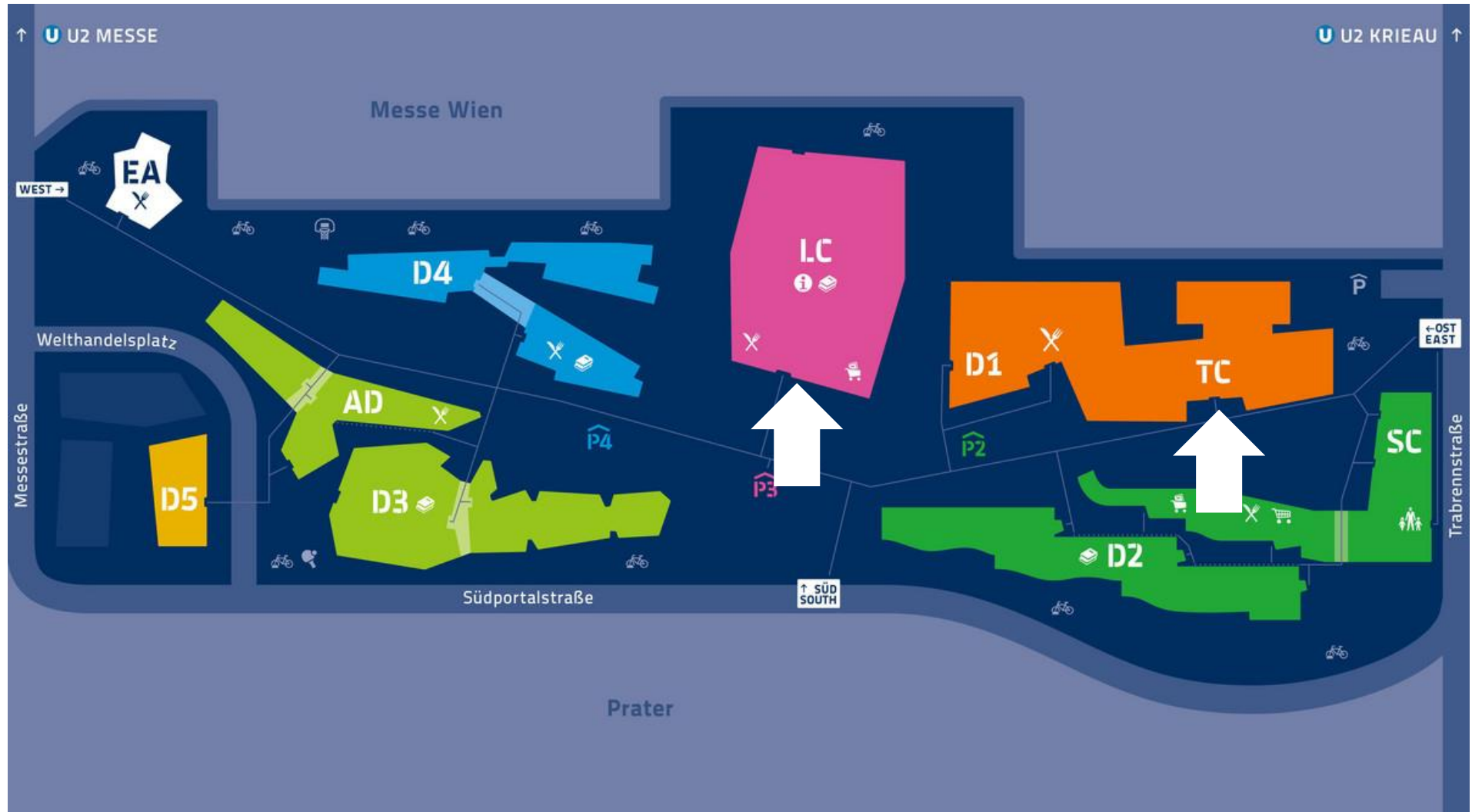
Sincerely,

SPUDM Organizing Committee

CONFERENCE LOCATION

A MAP OF THE WU CAMPUS

For interactive version go here: <https://campus.wu.ac.at/en/>



DAY OVERVIEW: SUNDAY 20TH AUGUST

	Library FESTSAAL 1 (LC)
15:00	Welcoming & Registration
16:00	Presidential Address
17:15	Lifetime Award
18:45	Reception

DAY OVERVIEW: MONDAY 21ST AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
08:30	TC Coffee & Registration				
09:00	Advice Taking	Ambiguity	Prosocial Behavior I	Heuristics & Biases I	
10:30	Library Coffee Break				
11:00	Library FESTSAAL 1: Welcome to WU				
	Library FESTSAAL 1: Keynote Sudeep Bhatia - Knowledge, Cognition, and Behavior				
12:15	Library Lunch Break with Topics Roundtables				
13:15	Misinformation & Polarization I	Risky Choices I	Prosocial Behaviour II	Predicting & Forecasting	Vaccination
14:45	TC Coffee Break				
15:15	Misinformation & Polarization II	Risky Choices II	Willful Ignorance	Heuristics & Biases II	Intertemporal Choices
16:45	TC Water Break				
17:15	Library FESTSAAL 1: Early Career Scientist Symposium				
18:30	Young Scientist Event (@Finns)				

SCHEDULE: MONDAY 21ST AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21	
08:30	TC Coffee & Registration					
	Advice Taking	Ambiguity	Prosocial Behavior I	Heuristics & Biases I		
09:00	Understanding How People Take Advice When They Do Not Report their Priors (Mark Himmelstein)	Tests of Recursive Models of Ambiguity Aversion (Pascal Kieren)	Social image and social distance (Ro'i Zultan)	Better-than-average researchers: Inflated beliefs about ethical research behavior (Amanda M. Lindkvist)		
09:15	Advice Taking vs. Combining Opinions: Framing Social Information as Advice Increases Source's Perceived Helping Intentions, Trust, and Influence (Maxim Milyavsky)	Attitudes to uncertainty - similarities of three main concepts and age differences (Michaela Michaliková)	The influence of automatic attention and frames on third-party punishment and compensation preferences (Claudia Civali)	When Half is At Least 50%: Effect of "Framing" and Probability Level on Frequency Estimates (Dr. David R. Mandel)		
09:30	Actors and observers in advice-based decision making (Ilan Yaniv)	Impact of construal level on individual accounting choices under multidimensional ambiguity (Divya Aggarwal)	Competence promotes cooperation in one-shot economic games, even when it shouldn't (Alexandra V. T. de La Trobe)	Rationally irrational: When people do not correct their reasoning errors even if they could (Miroslav Sirota)		
09:45	Weight on advice in a high-stakes setting: Evidence from a game show (Erik Løhre)	Ambiguity attitudes in sexual context (Aysil Emirmahmutoglu)	The Role of Emotional Arousal and Regulation in Positive Reciprocity: A Biological Approach (Eliran Halali)	Why Leading is (Almost) as Important as Winning - The Cumulative Redundancy Bias (Hans Alves)		
10:00	Process-Consistent Modeling of Information Sampling and Utilization (Tobias R. Rebholz)	A set of ambiguity experiments guided by an entropy measure (Sebastian Telker)	What stimulates pro-social behavior? Institutional design and rule following (Matthias Kasper)	Not All Attributions are Self-Serving: A Preference for Agency over Negative Outcomes (Giulia Maimone)		
			Benevolent machiavellianism: a study of the nature of prosocietal political skills in organizations (Petr Houdek)			
			Seven (weak and strong) beneficiary effects systematically tested in separate evaluation, joint evaluation and forced choice. (Arvid Erlandsson)			
10:15	The jury will disregard this information: biased judgments when receiving inadmissible evidence? (Rima-Maria Rahal)	The relationship between idea novelty and decision quality and the role of thinking style (Carola Wandres)	Disentangling Greed and Self-Interest (Marcel Zeelenberg)	Base-rate information moderates attribute framing evaluations (Eyal Gamliel)		
		Decision-making under Imperfect Information with Bayesian Learning or Heuristic Rules (Carina Burs)	A spillover effect of altruistic cheating: When benefiting others makes you a bad guy (Anat Halevy)	Most People Do Not Make Use of the Distribution of Features Within Categories to Categorize New Objects (Florian I. Seitz)		
		The Effect of Poverty on Cognitive Performance: a Systematic Review and Meta-analysis of the Causal Evidence (Pál Kolumbán)	Raising the white flag: Predictors of quitting decisions (Uri Zak)	Transitively cute: preferences for faces are remarkably transitive (Gabriel Vogel)		
10:30	Library Coffee Break					
11:00	Welcome to WU					
	Library FESTSAAL 1: Keynote Sudeep Bhatia - Knowledge, Cognition, and Behavior					
12:15	Library Lunch Break with Topics Roundtables					

SCHEDULE: MONDAY 21ST AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
	Misinformation & Polarization I	Risky Choices I	Prosocial Behaviour II	Predicting & Forecasting	Vaccination
13:15	Measuring polarization of Covid-19 risk perceptions (Olivia Fischer)	Cumulative Prospect Theory and Psychological Distance: Self-Other Differences in Decision-Making Involving Risk (Vanessa C. Clemens)	Charitable Donation Theories in the Wild: Evidence from a Large Online Donation Platform (Tom Gordon-Hecker)	The mechanisms of predicting other people's decisions (Erik Stuchlý)	Unrealistic Comparative Optimism for getting infected with COVID-19 - An individual participant meta-analysis (Lars König)
13:30	A Bias Attribution Model of Belief Polarization (David Young)	Operating on verbal probabilities and (precise and imprecise) numeric probabilities (Mandeep K Dhami)	On trait self-control and altruistic behavior (Haim Assor)	Premature Predictions: Forecasters Get Less Credit for Predictions Made Too Early (Celia Gaertig)	Do people apply a precautionary heuristic when stating intentions to get vaccinated? (Mitchell Matthijssen)
13:45	Political polarization shapes risk-taking in a simulated pandemic outbreak (Sebastian Hafenbrädl)	Decision making under risk does not differ for gains and losses when decision goals come to play (Laura Mangold)	Between self-interest and social preferences - A neuromodulation approach to establish the role of cognitive-control (Yoni Slater)	The probability of likely. Do standards of verbal probabilities for graded or multiple outcomes make sense? (Karl Halvor Teigen)	The more the merrier? Utilizing asymmetrically dominated decoys to increase vaccine uptake (Lars Korn)
14:00	Evolution of polarized political positions: a computational agent based model (Gustavo O. Aggio)	How to improve the measurement quality of behavioral tasks eliciting risk preferences (Steve Heinke)	Moral Rules and Social Preferences in Cooperation problems (Ernesto Gavassa Perez)	Eliciting full distribution beliefs when forecasters can improve predictions via costly information acquisition (Thomas de Haan)	Opt-out policy and its improvements promote COVID-19 vaccinations (Rui Zheng)
14:15	Belief Updating with Misinformation (Lars Wittrock)	Evaluating systematic deviations in behavioral measures of risk-taking depending on the structure of the task (Kevin Kapadia)	How Distorted is the Moral Self? Differences between Hypothetical and Real Donation Decisions (Matthieu Legeret)	Belief in Momentum: When Do People Expect Success to Continue? (Luxi Shen)	Confirmation bias and mitigating strategies in vaccine decision-making (Ploutarchos Kourtidis)
		Testing Resource-Rational Strategy Selection as a Model of Risky Choice (Florian Bolenz)			
		Optimal risky choices with goals: Modeling the optimality increase in people's choices to reach goals (Laura Mangold)			
14:30	Polarization and Group Perceptions (Amy Bruck)	The valence of mental imagery predicts people's willingness to take risks: Initial evidence using the Dynamic Mental Imagery Task (DMIT) (Jakub Traczyk)	Decision making about organ donation of a relative in emergent donation procedures: results of a fieldwork study (María Soria-Oliver)	Is behavioral economics predictable? (Daniel Navarro-Martinez)	Aversion towards New Technology Vaccines (Laura Zimmermann)
	Intentional Anchoring? (Adam Harris)	The format matters: The impact of the 1-in-X format on actual decisions (Stefania Pighin)	Common ground, we-thinking, and prosocial behaviour (Bijun(Becky) Zhu)	The Forecasting Proficiency Test: A Practicable Assessment of Forecasting Skill (Mark Himmelstein)	
	Emotions and Disclosures: Calm versus Frustrated States (Christos Themistocleous)	Who shows the Unlikelihood Effect - and Why? (Moritz Ingendahl)	How emotional dynamics of employees in service organizations influence prosocial behavior following witnessing rudeness (Ido Zigdon)		
14:45	TC Coffee Break				

SCHEDULE: MONDAY 21ST AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
	Misinformation & Polarization II	Risky Choices II	Willful Ignorance	Heuristics & Biases II	Intertemporal Choices
15:15	Alternative medicine, COVID conspiracies and other health-related unfounded beliefs: The role of scientific literacy, analytical thinking and importance of rationality. (Viktória Sunyík)	Choice blindness manipulation detection to gauge the stability of citizens' risk preferences? (Lisa Scholten)	Willful Ignorance of the Needy: The Surprising Role of Entitlement (Ilana Ritov)	The influence of information seeking on vaccination decisions (Marina Groß)	Mental accounting of time: An investigation of time as a resource (Maria Rosa Miccoli)
15:30	Dispelling the fog of conspiracy: The potential of anti-conspiracy interventions to curb the salience of conspiracy explanations (Jakub Šrol)	Not by Choices Alone: Evaluating Strength of Preference Judgments (John McCoy)	When Ignorance is a Curse: Being Blind to Irrelevant Information Compromises Selection Decisions (Hagai Rabinovitch)	Interchangeability of Cue and Outcome Density effects (Sahana Shankar)	Time neglect: Consumers overlook time and overemphasize accumulative index of quality (Jingyi Lu)
15:45	The Empathetic Refutational Interview: An intervention targeting cognitive and affective motivations to believe vaccine misinformation (Dawn Holford)	Order effects in preference elicitations (Orestis Kopsacheilis)	With knowledge and vividness, it is possible to improve climate change behavioral intentions. (Yael Mintz)	Measuring decision-making styles by different instruments - common features and age differences (Jozef Bavolar)	In Which Environments is Impulsive Behavior Adaptive? A Cross-Discipline Review and Integration of Formal Models (Jesse Fenneman)
16:00	The interface between political ideology and receptivity to pseudo-profound bullshit (Artur Nilsson)	Culture, personality and situation perspectives: How extroversion, neuroticism, conscientiousness personality traits and individualism-collectivism associated with risky decisions during COVID-19 pandemic (Keshun Zhang)	Ethical information-seeking and avoidance in consumer choice (Dianna Amasino)	I don't want to feel good, before I solve my problems; how emotional motives underly situation choice, through perceived utility. (Jurriaan te Koppele)	Pavlovian impatience: Anticipating immediate rewards increases instrumental go-responding compared to preference-matched delayed rewards (Floor Burghoorn)
16:15	Resolving content moderation dilemmas between free speech and harmful misinformation (Stefan M. Herzog)	Contextual effect in subjective and objective measures of preferences across decision-making modalities (Magdalena Soukupova)	Uncovering the Connection between Resource Scarcity and Ethical Decision-Making: Insights from Eye-Tracking (Caroline Kjær Børsting)	Recurring Suboptimal Choices Result in Superior Decision Making (Supratik Mondal)	Individual difference in time-ambiguity intertemporal choice and risky-ambiguity choice (Mingqian Guo)
16:30	Psychological interventions against susceptibility to fake news about COVID-19 (Beáta Sobotová)	Intuitive vs. Analytical Leaders: Consequences for Risk Seeking When Deciding for Others (Lewend Mayiwar)	Giving (in) to help an identified person (Linh Vu)	Cognitive Price of Cheap Processing (Kaja Damnjanovic)	Why do people pay not to go to the gym? (Andrea Isoni)
			When do logical intuitions give outputs? (Sandra Ilic)		
	Improving health research literacy and decision making among females through a podcast-based intervention (Katie Byrd)		Is (Price) Ignorance Bliss? Consumer Misprediction of Sampling Enjoyment (Siyuan Yin)	Pseudocontingencies in the Wild: Exploring Contingency Inferences from Base Rates Outside the Experimental Setting (Niklas Pivecka)	Uncertainty Attitudes and Poverty (Victor Gonzalez-Jimenez)
	The role of cognitive biases in conspiracy beliefs (Lorenzo Gagliardi)			Is COVID-19 Vaccine Hesitancy Related to Probability Neglect? A Process-Tracing and Computational Modeling Analysis (Kamil Fulawka)	
	The mediation role of institutional trust in the relation between precarity and the endorsement of conspiracy beliefs: a replication study from Slovakia (Eva Ballová Mikušková)		Spoiling the party. An experiment on transmission of inconvenient information. (Ivan Soraperra)	Stable Individual Differences in Overconfidence (M. Asher Lawson)	
16:45	Library Water Break				
17:15	Library FESTSAAL 1: Early Career Scientist Symposium				
18:30	Young Scientist Event (@Finns)				

DAY OVERVIEW: TUESDAY 22ND AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
09:00	Scarcity & Cognitive Restrictions	Decision from Experience	Conflict	Decision Processes & Individual Differences	
10:30	Library Coffee Break				
11:00	Library FESTSAAL 1: EADM General Assembly				
12:00	Library Lunch Break with Topics Roundtables				
13:15	Motivated Reasoning	Risky Choices III	Negotiation in Bargaining	Festsaal 1: LLM in JDM (Symposium)	
14:45	Coffee Break				
15:15	Augmented Decision-Making I	Decision Processes - Broader Perspectives	Norms & Compliance	Trust	Consumer Decision Making I
16:45	Library Water Break				
17:15	Library FESTSAAL 1: Keynote: Ellen Peters - Better Decision Making Through Objective Numeracy and Numeric Confidence				
18:45	Social Event in the 1. District				
21:00	Dance Party				

SCHEDULE: TUESDAY 22ND AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
	Scarcity & Cognitive Restrictions	Decision from Experience	Conflict	Decision Processes & Individual Differences	
09:00	Time Pressure in Multi-Attribute Inferences Affects Response Precision but Not Cognitive Processes (Florian I. Seitz)	The Interplay of Sampling and Integration Strategies in Decisions from Experience (Linus Hof)	Learning to Disagree: An NLP Feedback System for Encouraging Conversational Receptiveness (Burint Bevis)	The Choice of Ideology and Everyday Decisions (Thomas Gries)	
09:15	How Does Cognitive Load Affect Judgment and Decision Making? A Meta-Analysis (Janina A. Hoffmann)	No Description-Experience Gap in Choices Between a Described and an Experienced Option (Kevin Tiede)	It's not that bad to speak up: Are the interpersonal consequences caused by expressing dissent as negative as we believe them to be? (Yuqi Chen)	Structured analysis of personal criteria can save lives in joint (but not separate) evaluation (Tom Gordon-Hecker)	
09:30	Precarious conditions may prompt people to endorse conspiracy theories and make disadvantageous economic choices (Magdalena Adamus)	Choosing between experienced or described information in risky choice: Effects of prior usage (Ashley Luckman)	I'm sorry if you are: The risk of apologizing first (Valeria Burdea)	Click or Skip: Decision to Engage with Mobile Health Data Collection (Michael Sobolev)	
09:45	Do not make decisions on an empty stomach: the impact of hunger on attention and choice mechanisms across domains (Jennifer March)	A description-experience gap in face stereotyping (Lisheng He)	Conversational receptiveness transmits between parties and reduces affective polarization (Michael Yeomans)	Scale Midpoint Misuse: Understanding and Mitigating the Impact on Experimental Conclusions (Mili Mormann)	
10:00	The effects of resource inequality on bribery (Karolina Ściagała)	Regret matters more than disappointment or absolute loss in small-stakes repeated decisions-from-experience (Tim Rakow)	Fight or flight? Social concerns for other group members increases conflict participation and can escalate intergroup conflict (Luuk Snijder)	The influence of variance on active search in category learning (Ann-Katrin Hosch)	
10:15	Exploring the Impact of Scarcity Salience on Cognitive Performance: A Systematic Review and Empirical Study of Socioeconomic Moderators (Peter Szecsi)	The Description - Experience gap in cooperation (Orestis Kopsacheilis)	Loyal Friends and Honest Strangers: The effect of social proximity on the moral judgment of snitching (Shahar Ayal)	Attentional dilution causes attributes to be over/underweighted in choice depending upon the number of informative and uninformative attributes (Song Dai)	
		Frequent-winner options and skewness preferences (Mikhail Spektor)	What do we punish for? An experimental inquiry in criminal punishment (Maciej Próchnicki)	Covert attention in real-life shopping behavior (Anna Dreneva)	
		Evidence Accumulation in Unimodal and Bimodal Payoff Environments: A Sequential Sampling Approach to Decisions from Experience (Doron Cohen)	Experimental test of the effects of punishment probability and size on the decision to take a bribe (Štěpán Bahník)	Stochastic choice and imperfect judgments of line lengths: What is hiding in the noise? (John Smith)	
10:30	TC Coffee Break				
11:00	Library FESTSAAL 1: EADM General Assembly				
12:00	Library Lunch Break with Topics Roundtables				

SCHEDULE: TUESDAY 22ND AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	LC Festsaal 1	ROOM TC 3.21
	Motivated Reasoning	Risky Choices III	Negotiation in Bargaining	LLM in JDM: Symposium	
13:15	Consumer Trust and Product Choice in Online Marketplace: A Motivated Belief Perspective (Xianchi Dai)	Cognitive styles and framing effects in risky choice: A meta-analysis of mixed findings and an innovative empirical investigation. (Marc Wyszynski)	Dynamics of Bargaining (Wenjia Joyce Zhao)	An introduction to language models: Dirk U. Wulff (20 min)	
13:30	Reasoning vs. prior beliefs: The case of COVID-19 fake news (Vladimíra Kurincová Cavojeová)	The role of numeracy in judgment and decision making: the replication of eleven effects using several numeracy scales (Agata Sobkow)	High-Stakes Failures of Backward Induction (Martijn van den Assem)	Novel embeddings improve the prediction of risk perception: Zak Hussain, Rui Mata, & Dirk U. Wulff (15 min)	
13:45	Motivated sampling of information – Analysis with a Bayesian framework using experimental data and agent-based modelling (Leon Houf)	Group versus individual decision making under risk: Same biases but less noisy processing (Christin Schulze)	The impact of Fairness Reasoning and Equality Concerns on Bargaining Behavior – A Text Protocol Analysis of Behavioral Experiments in Germany and China (Heike Hennig-Schmidt)	Clustering decision situations with transformers: Shahar Hechtlinger & Dirk U. Wulff (15 min)	
14:00	The Wason selection task in the long-run: Evaluating the validity of (probabilistic) statements through evidence search (Konstantinos Armaos)	Effects of peer observation on risky decision-making in adolescence: A meta-analytic review (Bernd Figner)	Negotiation designs through the lens of situational affordances - A person-situation perspective on negotiation in public good settings (Dorothee Mischkowski)	Using cognitive psychology to understand GPT-3: Marcel Binz & Eric Schulz (15 min)	
14:15	Bayesian Inference: How the Heuristics-and-Biases View Unfolded in Economics (Tomás Lejarraaga)	Are rare events socially amplified in group risky choice? (Miriam Kachelmann)	Negotiators deceive less than we think: A theory of initial distrust in negotiation (Shira Garber)	Corrupted by Algorithms? How AI-generated and Human-written Advice Shape (Dis)honesty: Margarita Leib, Nils Köbis, Rainer Michael Rilke, Marloes Hagens, & Bernd Irlenbusch (15 min)	
14:30	Reexamining the positive manifold of human cognition (Keela S Thomson)	Production Rate Effects on Random Generation Elicitation (Lucas Castillo)	How Narcissists Match and Play in Games (Evangelia Spantidaki Kyriazi)	Discussion: Sudeep Bhatia (10 min)	
	How Do People Learn? The Impact of Gamified and Passive Learning on Discernment (Shaye-Ann Hopkins)		Self-signaling and magical thinking in sequential games (Matthew Cashman)		
	Blame the Victim? A Rational Analysis (Craig R. M. McKenzie)		Sharing the Benefits of Costly Help (David Budescu)		
14:45	TC Coffee Break				

SCHEDULE: TUESDAY 22ND AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
	Augmented Decision-Making I	Decision Processes - Broader Perspectives	Norms & Compliance	Trust	Consumer Decision Making I
15:15	Robo-advisors for the masses? Insights from financial and risk literacy tests of large language models (GPT-3.5) (Paweł Niszczoła)	Investigating age-related differences in counterfactual curiosity (Alessandro Bogani)	How explicit expected value information affects tax compliance decisions and information acquisition (Christoph Kogler)	Trust Across Contexts (Daniel Banki)	Consumption Portfolio Management: Very Good Stuff Is Best Enjoyed By Itself (Luxi Shen)
15:30	Trusting Financial Algorithms as a Decision under Ambiguity (Qiong XIA)	The big two as dynamic determinants of person impression formation (Johannes Prager)	Delayed audit feedback on tax compliance: An eye-tracking study (Žiga Puklavec)	Deontologists are not always trusted over utilitarians: Revisiting Inferences of Trustworthiness from Moral Judgments (Subramanya Prasad Chandrashekar)	Copycat product labels cause consumer confusion (Martin Schoemann)
15:45	Decision-Making under Algorithmic Recommendation (Ariel Listo)	The role of confidence in regulating pre-decisional information search in sample-based decisions (Linda McCaughey)	Repeated Sampling of Group Members and Norm Perception (Thomas K.A. Woiczky)	Trust repair in advice relationships (Ilan Torgovitsky)	On the Likelihood of Acquiring a Premium Service Under Freemium vs. Paymium: Field and Experimental Evidence (Anna Dorfman)
16:00	When and Why Implementing Bad AI-Algorithms Feels Worse Than Self-Initiating Them (Bar Shlomo)	Decisions about tattoos and the end of history illusion (Peter Ayton)	Comprehension in economic games (Lina Koppel)	Do people have a trust propensity? On the relation between common elicitation methods of trust (Eyal Ert)	Value Magnitude Dependent Choice and Attention Dynamics (Jingkai Hong)
		Of mind and motion: The effect of force-feedback perturbations on the processing dynamics in task switching behavior (Judith Herbers)			
		Making a difference: Criticality in groups (Ro'i Zultan)			
16:15	“Where is this rating from?” The role of platform type on consumers’ expectations of ratings variance and consumers’ behavior (Lishi Tan)	Failures in the exploration/exploitation tradeoff (Chris Harris)	The effectiveness and intragroup dynamics of collective punishment (Qinyu Xiao)	Trust is a two-way street: Why trusting advisors are more persuasive (Uriel Haran)	The Life you Save (For): Experiences Dominate Goods in Motivating Savings (Siyuan Yin)
		Decisions from Multidimensional Observations: the Role of Grouping Observations (Maya Leshkowitz)			
16:30	Advising the Ill-advised: A Gamified Training Intervention for Improving Decision Making Ability in Young Adults (Gustaf Wadenholt)	Eliciting Accurate Risk Perceptions: The Influence of Conditional Question Framing on Predicting Health Prevention Behaviors (Jeremy D Strueder)	Citation Penalties Following Sexual Misconduct versus Scientific Fraud Allegations (Giulia Maimone)	The Menu of Deception (Valeria Burdea)	So Bad It's Good: When and Why Do People Prefer Bad Options? (Evan Weingarten)
		What's Complexity Got To Do With It? (Megan M Crawford)	Quasi-experimental approach to the analysis of decision making about organ donation of a deceased relative: discussing strengths and limitations of a research program (Jorge S. López)	Exploring Perceived Trustworthiness and Credibility of User-Generated Video Evidence in the Context of Human Rights Violations: A Mixed-methods Study Alice Liefgreen)	
		Mental accounting and locus of control (MAryam Javareshk)	Sweden unmasked: descriptive and injunctive norms about COVID-19 face masks (Per Andersson)	The Inter-Group Trust Game: Exploration of Trust Within and Between Non-Unitary Groups (Tamar Kugler)	
16:45	Library Water Break				
17:15	Library FESTSAAL 1: Keynote: Ellen Peters - Better Decision Making Through Objective Numeracy and Numeric Confidence				
18:45	Social Event in the 1. District (registration only, Comida y Ron, Stubenring 20, 1010 Wien)				
21:30	Dance Party (all welcome, Comida y Ron, Stubenring 20, 1010 Wien)				

DAY OVERVIEW: WEDNESDAY 23RD AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
09:00	Augmented Decision-Making II	Choice Modelling I	Sustainability	Risk Communication	
10:30	Library Coffee Break				
11:00	Library FESTSAAL 1: Awards				
12:00	Library Lunch Break				
13:30	Library FESTSAAL 1: Keynote: Martin Kocher - The Role of Behavioural Science in Political Decision-Making				
14:45	Library Coffee Break & Posters				
16:00	Social Learning	Loss Aversion	Inequality	Choice Modelling II	Intertemporal Choice II

SCHEDULE: WEDNESDAY 23RD AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
	Augmented Decision-Making II	Choice Modelling I	Sustainability	Risk Communication	
09:00	Artificial Intelligence and a Microperspective of Corruption: How Human-AI Collaboration Affects Individuals' Cheating Behavior (Elena Reutskaja)	Predicting human decisions with behavioral theories and machine learning (Ori Plonsky)	Over-harvesting like there is no tomorrow: Evidence from dilemma-free common pool games (Jan K. Woike)	Disclosing Diagnostic Uncertainty during Antibiotic Prescribing (Elisabeth Sievert)	
09:15	The Ethical Risks of Algorithmic Delegation (Nils Köbis)	Modeling Choice Behavior in Probabilistic Inferences Tasks using Artificial Intelligence (Andreas Glöckner)	Financial-return and environmental-impact information promote ESG investments: Evidence from a large-scale incentivized online-experiment (Marcel Seifert)	Responses to heat risk communication in the UK: Insights from two post-event surveys (Andrea Taylor)	
09:30	Psychological Determinants of Financial Technology Adoption and Financial Resilience (Sandra Andraszewicz)	The Importance of Complex Models in Decision Making Research: An Empirical Analysis using BEAST (Or David Agassi)	The influence of implicit and explicit political identify cues on partisans' preference for climate policies: The case of temporal message framings (Mario Herberz)	Which outcome do people prefer to predict based on a distribution of possible outcomes? (Marie Juanchich)	
09:45	Algorithms and clinical judgement: impact of advice distance, algorithm information, social proof and a visual aid. (Olga Kostopoulou)	An affect-modulated Instance Based Learning model for multi-armed bandit problems, applied to the Iowa Gambling Task (Gabor Ruzsa)	The Social Dilemma of Climate Policy (Simon Columbus)	Affective Motivated Reasoning about a Low-Value Solution to a Threat (Michael Silverstein)	
10:00	Is it ok to share others' data? Exploring the propensity to neutralize the giving away of others' data (Susanne Ruckelshausen)	Modeling Carbon Footprint Estimates of food items after administering a Simple Seeding Procedure (Arndt Bröder)	The tree-hugging decision maker: Restoring decision-making competence through exposure to nature (Fabio Del Missier)	A Psychological Model of Collective Risk Perceptions (Sergio Pirla)	
10:15	Cognitive Functioning is Better on Computers than on Smartphones: A Bayesian Multilevel Meta-Analysis (Shir Etgar)	A Novel Approach for Generating Sampling Distributions for Cognitive Modeling (Stephen B. Broomell)	Explaining climate dividends transparently raises public support for carbon taxation (Mirjam A. Jenny)	How do people perceive the risk of endocrine-disrupting chemicals? (Sonja Perkovic)	
	The Influence of Variations in Risk on the Prediction of Car Choice by the Technology Acceptance Model (Teresa Roth)		Attribute Ambiguity and Justification in Environmental Decision Making (Nicolò Bertani)	Experimental investigations of judgements about combined health risks (Martina Barjaková)	
			Preferences for energy efficiency when buying houses, and realtors' ability to predict energy efficiency choices (Erik Gråd)	Exploring the Emotional Content and Appraisal Characteristics of Risk Communications (Ayse Ozsari Sahin)	
10:30	Library Coffee Break				
11:00	Library FESTSAAL 1: Awards				
12:15	Library Lunch Break				

SCHEDULE: WEDNESDAY 23RD AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01	ROOM TC 3.21
13:30	Library FESTSAAL 1: Keynote: Martin Kocher - The Role of Behavioural Science in Political Decision-Making				
14:45	Library Coffee Break & Posters				
	Social Learning	Loss Aversion	Inequality	Choice Modelling II	Intertemporal Choice II
16:00	What you like depends on who you ask: Age-related differences in social information search affect risk preferences (Bettina von Helversen)	Can losses lead to more cognitive reflection than gains? (Carlos Rey)	Confident winners of a meritocratic world (Oda Sund)	Tracking the evidence: Linking movement trajectories to sequential sampling theory. (Oliver Grenke)	The language effect on intertemporal decision: A holistic perspective (Yuepei Xu)
16:15	Observational Learning of Exploration Exploitation Strategies in Bandit Tasks (Ludwig Danwitz)	Revealed Randomization with Loss (Yan Xu)	Income inequality and status seeking. An empirical analysis of human mobility data (Yuqi Ye)	As-if and process models of labor provision: a case study of the taxi market (Florian Artinger)	Directing Deliberation in Intertemporal Choice (Simon T. van Baal)
16:30	Social Learning, Metacognition and Behavioral Biases (Andrea Amelio)	Understanding waste aversion (Ori Weisel)	Citizens are uniquely insensitive to the income of the richest 1% (Barnabas Szaszi)	Identifying latent emotion (instant utility?) triggers using psychophysiological indicators with an Experience-Based Choice Model in a travel experiment (Bastián Henríquez-Jara)	Intertemporal Prospect Theory (Matthias Weber)
16:45	The value of control (Moritz Reis)	The Prestigious Match Effect: The Surprising Cost of Beating Your Biggest Rival (Lior Shem-Tov)	We Are Unequal, Yet Still We Trust - Perceived Economic Inequality Does Not Decrease Interpersonal Trust (Lara Többen)	Memory-Based Decision-Making in Daily Life via a Random Walk Through Memory-Space: The Case for CASES (Achiel Fenneman)	The cross-modal discounting effect in Japan and the US (Shohei Yamamoto)
17:00	Unable to learn? the impact of stereotype congruency and ambiguity attitudes (David Gonzalez-Jimenez)	The processing of negative numbers and its impact on economic judgment (Hannah Seidler)	Redistributive preferences are resistant to information about the income of the richest 1% (Livia Kosa)	An experimental and computational investigation of agreement-based moral decision making (Arthur Le Pargneux)	Reference-dependent discounting for health and money: evidence from timing prospects (Zhihua Li)
17:15	Motivating Low Performers with Input-based Relative Performance Feedback (Rainer Michael Rilke)	The Role of Status Quo Bias in Judgements of Active Travel Infrastructure Change (Ylva Andersson)	Who, how much and when: effect of endogenous suggested rules and unequal extraction levels on a common resource game (Giulia Priolo)	Modeling the emergence of context-based choice biases in risky decision-making (Nick Simonsen)	How Categorization Shapes the Probability Weighting Function (Dan Schley)
	Learning from other people's social behavior (Sophie Bavard)	Status Quo Bias and the Decoy Effect: A Comparative Analysis in Choice under Risk (Georgios Gerasimou)	Affirmative Action: (Within-)group inequality in competitive environments (Jan Hausfeld)	Search Strategy Adaptivity in Large Set Sizes (Thai Q. Cao)	
		Habits hinder exploration of new and better alternatives: an experimental study on transportation behavior (Bastián Henríquez-Jara)		Fluid intelligence predicts model fit of both exemplar-based memory and cue-abstraction and suggests a role for inferior parietal cortex in multiple-cue judgment (Sara Stillesjö)	

DAY OVERVIEW: THURSDAY 24TH AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01
09:00	Collective Intelligence	Risky Choices IV	Heuristics & Biases II	Decision Processes
10:30				
10:45	Behavior Change	Decisions from Experience II	Dishonesty	Consumer Decision Making II & Learning
12:15	Library Coffee Break			
12:45	Library FESTSAAL 1: Keynote: Crystal Hall - Antiracist Applied Behavioral Science: Using Our Tools to Confront Structural Racism			
13:45	Library Farewell Lunch			

SCHEDULE: THURSDAY 24TH AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01
	Collective Intelligence	Risky Choices IV	Heuristics & Biases II	Decision Processes
09:00	Fast And Slow Crowds: Identifying A Smaller, More Accurate Crowd Using Response Time (Jacqueline Kurz)	Risky Effort (Alice Mason)	Do rational thinkers think too much? (Brian Polin)	How and how often do people make transformative life decisions? (Shahar Hechtlinger)
09:15	The Mere Audience-Size Effect: When and Why a Large Audience Non-Normatively Inflates the Perceived Competence of Actors (Tian Qiu)	Tempted to take a gamble: Dispositional Greed and Domain-Specific Risk-Taking (Karlijn Hoyer)	The Influence of Price Expectations on the Inaction Inertia Effect (Vanessa Rettkowski)	Testing a computational framework for modeling flexible goal-directed choices and valuations (Sebastian Gluth)
09:30	The Wisdom of Algorithmic Crowds: Do Decision-Makers Use Crowd-Based Algorithmic Advice? (Joshua Tenn)	What's in a Sample? How Sampling Information Affects Epistemic Uncertainty and Risk-Taking (Sebastian Olschewski)	Who Accepts Description Invariance? (Xingyu (Shirley) Liu)	Do we know what we are doing? A multi-method mapping of cognitive strategies and intuitive and analytic thought. (August Collsiöö)
09:45	Communication cost and unopinionated individuals can impede majority consensus in group decision making (Nico Gradwohl)	What increases risk-taking under sexual arousal? Uncovering the underlying cognitive and affective mechanisms (Nina Ehmann)	Testing a parallel coherence-based process of preference updating about options and information distortion when information is presented sequentially (Carolin Häffner)	Intuitive Decision Making Predicts Satisfaction and Happiness with Real-World Choices (Claire Gregory)
10:00	The follow-the-fast heuristic: A simple strategy for selecting accurate answers in a crowd of answers (Emir Efendic)	Greedy Gamblers? Associations between Dispositional Greed and Problem Gambling in England (Joshua Weller)	Mindware automatization: A possible key to logical intuitions? (Roman Burič)	Exploring the Relationship between Decision-Making Styles and Implementation Intentions (Ester Nosálová)
	How does Deliberation regulate the Wisdom and Madness of Crowds? A Registered Report (Erik Kommol)		Rational choices are more successful than intuitive choices in everyday decision making (Adrian Banks)	Mapping Beliefs about Uncertainty: Development and Validation of the Uncertainty Mindset (Alina Gerlach)
	The wisdom and madness of interactive crowds with a structured network (Jingyu G. Xi)		It is the strategy shift that causes longer response times, not the judgment rule (Linus Andersson)	The overall magnitude influences choice behaviors and eye-movement in both perceptual and value-based decisions (Chih-Chung Ting)
10:15	Getting more wisdom out of the crowd: The case of competence-weighted aggregates (Enrico Diecidue)	The ecology of risk: Mapping the risky choices prevalent in modern life (Renato Frey)	Anchoring the Anchor: Bidirectional Assimilation of Judgments when Items are used as Anchors (David Young)	The meta-analysis on the relationships among multiple numeric competencies and financial outcomes. (Angelika Olszewska)
	Self-organised collective intelligence with consistently risk averse individuals (Wataru Toyokawa)	Making a risk seem riskier: A new framing effect in risk communication (Xin Liu)	Contextual Thinking in Behavioral Anomalies (Junyi Chai)	Is there a difference between text and speech in judgment and choice? (Anton Kühberger)
	The Relationship between Environmental Volatility and Optimal Experience Diversity for Wise Forecasting Crowds (Liza Konovalova)	Exploring how the affect-gap in risky choice is influenced by day-of-the-week effects. (Claire Heard)	Reported Percentages Are Biased Measures of Probabilistic Beliefs (David Comerford)	Telling more about telling more than we can know: Inferences from mouse tracking and introspective reports (Michael Schulte-Mecklenbeck)
10:30	TC Coffee Break			

SCHEDULE: THURSDAY 24TH AUGUST

	ROOM TC 2.01	ROOM TC 2.03	ROOM TC 2.02	ROOM TC 3.01
	Behavior Change	Decisions from Experience II	Dishonesty	Consumer Decision Making II & Learning
10:45	The joint impact of verbal nudges and experienced outcomes: A choice prediction competition (Ido Erev)	Decisions from Experience: Sampling for others (Christoph Becker)	The impact of communication on collaborative dishonesty (Mathilde Tønning Tønnesen)	Investigating the attentional process underlying the decision signpost. (Balachandar Kaliappan)
11:00	Habit replacement: Evidence from two field studies (Duc Quang Pham)	Attention Checks in Decisions From Experience: The Case of Checking Experiments (Yefim Roth)	Honesty as a Moral Currency: Collaborative Dishonesty in the USA and India (Jonas Ludwig)	Inaction Inertia Walks into a Bar! Would Removing Discounts Reminders from Menus Increase Sales After, but not During Happy Hour Activities (Yaniv Shani)
11:15	Evaluating the Effectiveness of Nudges in Academia and Public Policy (Maximilian Maier)	Sample Range as Subjective Variability and Implications for Risk Preferences (Tianwei Liu)	Factors affecting the accuracy of deception judgment in groups (Fergus Bolger)	Transaction-Level Wage Transparency and Consumer Preferences (Christoph Ungemach)
11:30	Revealing Hidden Heterogeneity: Explaining Differences in Treatment Effects in the Social Sciences (Antonia Krefeld-Schwalb)	Noisy retrieval of experienced probabilities underlies rational judgment of uncertain multiple events (Leonidas Spiliopoulos)	Reference dependence and lying (Yossi Tobol)	The Shortest Distance Between Two Points is Not a straight Line: The Impact of Borders on the Choice for Local Food (John Price)
11:45	Using Geopolitical Signposts To Promote Environmental Decision Making (Nienke Buters)	Affect Biases Both Search and Preference in Decisions from Experience (Thorsten Pachur)	Can people use confidence to deceive others? (Marta Mangiarulo)	Learning the value of Eco-Labels: The role of information in sustainable decisions (Alejandro Hirmas)
	Effects of transparent defaults on decisions and decision makers' perceptions of the default setter (Leo J Kleiman-Lynch)			
	The role of mental imagery and feedback in bridging the gap between climate change awareness and impactful climate action (Hulda Karlsson)			
12:00	Nudging towards lower indoor temperatures in times of energy crisis - When a default backfires (Richard Szanto)	Description-plus-Experience: How decision-makers combine descriptions and experience (Leonardo Weiss-Cohen)	Facing the Mirror: Paradox Mindset and Self-Esteem. (Eriselda Danaj)	Towards unifying category learning and probability learning using the CAL framework of rule extrapolation and contextual modulation (René Schlegelmilch)
	Pay One or Pay All? The Role of Incentive Schemes in Decision Making Across Adulthood (Sebastian Horn)		Lying for others may boost dishonesty (Mika Guzikovits)	
	A descriptive social norm to nudge clients to a pro-environmental behavior (Alessia Dorigoni)	An attentional explanation for the description-experience gap (Veronika Zilker)	The Effect of Numerical Magnitude on Ethical Judgment and Behavior (Ben Heller)	Keeping Options Open: How Decision Reversibility Dampens Evaluations of Choices based on Quality (Dionysius Ang)
12:15	Library Coffee Break			
12:45	Library FESTSAAL 1: Keynote: Crystal Hall - Antiracist Applied Behavioral Science: Using Our Tools to Confront Structural Racism			
13:45	Library Farewell Lunch			

PRESIDENTIAL ADDRESS

SUNDAY 20TH AUGUST 2023 16:00

ELDAD YECHIAM

TECHNION, ISRAEL

Professor Eldad Yechiam primarily focuses on studying the realm of decision making, learning, and behavioral economics. His main contributions are in the study of cognitive asymmetries that result from different incentive structures, individual differences in decision making, and cognitive enhancement.

Furthermore, he serves as the Head of the Technion Ethics Committee for Behavioral Studies and holds the position of Editor in Chief of the Journal of Economic Psychology.



KEYNOTE SPEAKERS

MONDAY 21ST AUGUST 2023 11:00

SUDEEP BHATIA

UNIVERSITY OF PENNSYLVANIA, US

Professor Sudeep Bhatia studies the cognitive basis of human judgment and decision making with the use of mathematical and computational models. He extends psychological research on perceptual decision making and memory retrieval to explain behavioral findings in domains such as multiattribute choice, risky choice, and probability judgment.

Also, he builds upon methodological insights from semantic memory research and computational linguistics to uncover knowledge representations for objects, attributes, and events that are the focus of everyday judgment and decision tasks.



Talk Title: Knowledge, Cognition, and Behavior

I discuss how insights from artificial intelligence can be used to build psychological models with realistic knowledge representations about the world. In addition to specifying the information processing mechanisms people use to form beliefs and preferences, these models also describe the information on which these mechanisms operate. Subsequently, they are able to deliberate over and respond to naturalistic judgment, decision making, and reasoning problems, and moreover, mimic human responses to these problems. I demonstrate the applicability of these models to domains as diverse as consumer choice, risk perception, health judgment, political judgment, social perception, memory retrieval, semantic cognition, and inductive reasoning. These models shed light on how people think and decide in their everyday lives, and illustrate a powerful new approach to predicting real-world behavior.

KEYNOTE SPEAKERS

TUESDAY 22ND AUGUST 2023 17:15

ELLEN PETERS

UNIVERSITY OF OREGON, US

The primary research interests of Professor Ellen Peters concern how people judge and decide, and how evidence-based communication can boost comprehension and improve decisions in health, financial, and environmental contexts. She is especially interested in the basic building blocks of human judgment and decision making—such as emotions and number abilities—and their links to effective communication techniques treatments.



Talk Title: Better Decision Making Through Objective Numeracy and Numeric Confidence

Did you know that many adults are too innumerate to make effective health and financial decisions? In this talk, I'll focus on psychological mechanisms underlying effects of objective numeracy (it's like literacy but with numbers) and numeric confidence (i.e., numeric self-efficacy) on judgments and decisions before turning to methods to nurture numeracy to benefit individuals and society.

KEYNOTE SPEAKERS

WEDNESDAY 23RD AUGUST 2023 11:00

MARTIN KOCHER

FEDERAL MINISTER OF LABOUR AND
ECONOMY OF THE REPUBLIC OF AUSTRIA

Martin Kocher is Federal Minister of Labour and Economy since July 2022. He was previously appointed Federal Minister for Labour, Family and Youth as well as Federal Minister for Digital and Economic Affairs.

He was also Professor of Behavioral Economics with Applications in Austrian Economic Policy at the Institute of Economics and at the Vienna Center for Experimental Economics at the University of Vienna and was Scientific Director of the Institute for Advanced Studies (IHS) from 2016 to 2021. His research studies the effects of uncertainty and insurance on economic decision making, cooperation and trust, economic behavior of children and adolescents, auction design, public policy, and moral behavior.



Talk Title: The Role of Behavioural Science in Political Decision-Making

KEYNOTE SPEAKERS

THURSDAY 24TH AUGUST 2023 12:45

CRYSTAL HALL

UNIVERSITY OF WASHINGTON, US

Crystal Hall is an Associate Professor at the Evans School of Public Policy & Governance, and Adjunct Associate Professor of Psychology at the University of Washington. Her research pursues the integration of psychology into the design and implementation of social policy, with a particular focus on race, equity, and decision making in the context of poverty. She has a record of serving United States government agencies at the local, state, and federal level, including having served as a Fellow on the White House Social and Behavioral Sciences Team and the U.S. Federal Office of Evaluation Sciences at the General Services Administration.



Talk Title: Antiracist Applied Behavioral Science: Using Our Tools to Confront Structural Racism

Behavioral science has increasingly been celebrated as a way to create a better world, with insights being applied to the design of everything from health policies and urban transportation systems to college financial aid forms. But what if, hidden in plain sight, a fundamental flaw in its application is perpetuating unjust systems rather than correcting them? In this address, I will examine the field through a racial equity lens. Then, I will unpack the challenge of implementing applied behavioral science with an antiracist foundation. Finally, I offer some suggestions for practicing antiracism in our work by reforming our research methods, diversifying the field, and listening to and partnering with diverse teams.

EARLY CAREER SYMPOSIUM

MONDAY 21ST AUGUST 2023 17:00

The SPUDM conference warmly invites you to our Early Career Researchers (ECR) panel discussion. This is a special opportunity to bridge the wisdom of established researchers with the fresh perspectives of the early career community.



Moderator

ANNA SHCHERBIAK

VIENNA UNIVERSITY OF
ECONOMICS AND BUSINESS



Panellist

SHAUL SHALVI

UNIVERSITY OF AMSTERDAM



Panellist

BETTINA VAN HELVERSEN

UNIVERSITÄT BREMEN



Panellist

DAVID BUDESCU

FORDHAM UNIVERSITY



Panellist

MIRJAM A. JENNY

UNIVERSITY OF ERFURT

After “work” drinks: In the spirit of fostering genuine conversations, we will head afterwards to Finns (a restaurant on campus for some beverages and finger food).

Your Questions Matter: Your journey in Judgment and Decision Making (JDM), publishing, and beyond is unique. We'd love to hear from you. If there's a question on your mind or a topic you'd like to delve into, please share it with us. Feel free to submit one question at a time, and for additional inquiries, simply reload the form: <https://forms.gle/ZamZmGinQ2tQu5mc9>

LLM in JDM SYMPOSIUM

TUESDAY 22ND AUGUST 2023 13:15

In this symposium, we aim to provide an introduction to language models and showcase research exemplifying four fundamental research directions: (i) how language models can be leveraged to build more accurate and generalizable models of behavior, (ii) how language models can be used as analytic tools in judgment and decision making research, (iii) how judgment and decision research can be used to understand and benchmark language models, (iv) how judgment and decision making research can help address ethical issues related to the application of language models. We hope this symposium will inspire future research in judgment and decision making utilizing language models and raise awareness about important practical and ethical challenges.



Convener

DIRK U. WULFF

UNIVERSITY OF BASEL



Convener

ZAK HUSSAIN

UNIVERSITY OF BASEL



Contributor

SHAHAR HECHTLINGER

HEBREW UNIVERSITY OF JERUSALEM



Contributor

MARCEL BINZ

MAX PLANCK INSTITUTE



Contributor

MARGARITA LEIB

TILBURG UNIVERSITY



Discussant

SUDEEP BHATIA

UNIVERSITY OF PENNSYLVANIA

LLM in JDM SYMPOSIUM

An introduction to language models (20 min)

Dirk U. Wulff

This presentation will provide an introduction to language models consisting of three parts. First, it will give an overview of the history of language models, which began in the early days of research on artificial intelligence and includes critical contributions from the cognitive sciences. Second, it will explain the key innovations behind the recent boost in performance and popularity of language models, including the attention mechanism in transformer language models. Third, it will present key research directions concerning the use of language models in behavioral research and real-world applications and discuss opportunities and challenges for judgment and decision making research.

Novel embeddings improve the prediction of risk perception (15 min)

Zak Hussain, Rui Mata, & Dirk U. Wulff

We assess whether the classic psychometric paradigm of risk perception can be improved or supplanted by novel approaches relying on language embeddings. To this end, we introduce the Basel Risk Norms, a large data set covering 1,004 distinct sources of risk (e.g., vaccination, nuclear energy, artificial intelligence) and compare the psychometric paradigm against novel text and free-association embeddings in predicting risk perception. We find that an ensemble model combining text and free association rivals the predictive accuracy of the psychometric paradigm, captures additional aspects not accounted for by the classic approach, and has greater range of applicability to real-world text data, such as news headlines. Overall, our results establish the text and free-association embeddings ensemble as a promising new tool for researchers and policymakers to track real-world risk perception.

Clustering decision situations with transformers (15 min)

Shahar Hechtlinger & Dirk U. Wulff

Traditionally, judgment and decision making research is conducted in the lab, where decision scenarios are meticulously designed. While this approach has many benefits, it also has drawbacks: limited exploratory analysis and low external validity are but two limitations. Transformer language models (e.g., BERT, GPT-4) present an intriguing avenue for exploratory analysis of real-life decision situations (e.g., choosing a career, separating from a life partner), which rarely conform to the sterile environment of lab experiments. However, behavioral scientists often lack the technical background to use such models in research. Here we evaluate transformer-based clustering algorithms aimed at grouping naturally occurring decision situations. Ultimately, this approach can open up new directions for studying judgment and decision-making using state-of-the-art natural language processing, and form the basis for an accessible clustering tool applicable to different domains of human behavior.

LLM in JDM SYMPOSIUM

Using cognitive psychology to understand GPT-3 (15 min)

Marcel Binz & Eric Schulz

We study GPT-3, a recent large language model, using tools from cognitive psychology. More specifically, we assess GPT-3's decision-making, information search, deliberation, and causal reasoning abilities on a battery of canonical experiments from the literature. We find that much of GPT-3's behavior is impressive: it solves vignette-based tasks similarly or better than human subjects, is able to make decent decisions from descriptions, outperforms humans in a multi-armed bandit task, and shows signatures of model-based reinforcement learning. Yet we also find that small perturbations to vignette-based tasks can lead GPT-3 vastly astray, that it shows no signatures of directed exploration, and that it fails miserably in a causal reasoning task. Taken together, these results enrich our understanding of current large language models and pave the way for future investigations using tools from cognitive psychology to study increasingly capable and opaque artificial agents.

Corrupted by Algorithms? How AI-generated and Human-written Advice Shape (Dis)honesty (15 min)

Margarita Leib, Nils Köbis, Rainer Michael Rilke, Marloes Hagens, & Bernd Irlenbusch

Artificial Intelligence (AI) increasingly becomes an indispensable advisor. New ethical concerns arise if AI persuades people to behave dishonestly. In a financially incentivized, pre-registered experiment, we study how AI advice (generated by a Natural-Language-Processing algorithm, GPT-J) affects (dis)honesty, compare it to equivalent human-written advice, and test whether transparency about advice source matters. We find that dishonesty-promoting advice increases dishonesty, whereas honesty-promoting advice does not increase honesty. This is the case for both AI- and human-advice. Algorithmic transparency, a commonly proposed policy to mitigate AI risks, does not affect behavior. The findings mark the first steps towards managing AI advice responsibly.

Discussion (10 min)

Sudeep Bhatia

ROUNDTABLE TOPICS

During lunch breaks on the first two conference days, we would like to invite you to join some of the roundtables where you can connect with your colleagues and discuss current topics from the field. You are encouraged to share your experiences, exchange ideas, and gain a deeper understanding of the current trends and challenges that are at the forefront of JDM.

MONDAY 21ST AUGUST 2023 12:15

AI & JDM

JDM in the field

Cognitive and Computational Modeling

Scientific Misconduct in Behavioral Science

Hidden Curriculum

NSF Q&A

TUESDAY 22ND AUGUST 2023 12:00

Career Outside of Academia

JDM & Sustainability

LLM and Decision-making

Open Science

Hidden Curriculum

Generalizability and Diversity of JDM Research

NSF Q&A

POSTER EXHIBITION

WEDNESDAY 23RD AUGUST 2023 14:45

1. Per ANDERSSON Sweden unmasked: descriptive and injunctive norms about COVID-19 face masks
2. Linus ANDERSSON It is the strategy shift that causes longer response times, not the judgment rule
3. Sophie BAVARD Learning from other people's social behavior
4. Florian BOLENZ Testing Resource-Rational Strategy Selection as a Model of Risky Choice
5. Nienke BUTERS Using Geopolitical Signposts To Promote Environmental Decision Making
6. Thai Q. CAO Search Strategy Adaptivity in Large Set Sizes
7. Doron COHEN Evidence Accumulation in Unimodal and Bimodal Payoff Environments: A Sequential Sampling Approach to Decisions from Experience
8. Kaja DAMNJANOVIC Cognitive Price of Cheap Processing
9. Alessia DORIGONI A descriptive social norm to nudge clients to a pro-environmental behavior
10. Chris HARRIS Failures in the exploration/exploitation tradeoff
11. Sebastian HORN Pay One or Pay All? The Role of Incentive Schemes in Decision Making Across Adulthood
12. Kevin KAPADIA Evaluating systematic deviations in behavioral measures of risk-taking depending on the structure of the task

POSTER EXHIBITION

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| 13. | Laura MANGOLD | Optimal risky choices with goals: Modeling the optimality increase in people's choices to reach goals |
| 14. | Maciej PRÓCHNICKI | What do we punish for? An experimental inquiry in criminal punishment |
| 15. | Florian I. SEITZ | Most People Do Not Make Use of the Distribution of Features Within Categories to Categorize New Objects |
| 16. | Nick SIMONSEN | Modeling the emergence of context-based choice biases in risky decision-making |
| 17. | Magdalena SOUKUPOVA | Contextual effect in subjective and objective measures of preferences across decision-making modalities |
| 18. | Evangelia SPANTIDAKI KYRIAZI | How Narcissists Match and Play in Games |
| 19. | Mikhail SPEKTOR | Frequent-winner options and skewness preferences |
| 20. | Lishi TAN | "Where is this rating from?" The role of platform type on consumers' expectations of ratings variance and consumers' behavior |
| 21. | Chih-Chung TING | The overall magnitude influences choice behaviors and eye-movement in both perceptual and value-based decisions |
| 22. | Gabriel VOGEL | Transitively cute: preferences for faces are remarkably transitive |
| 23. | Gustaf WADENHOLT | Advising the Ill-advised: A Gamified Training Intervention for Improving Decision Making Ability in Young Adults |
| 24. | Bijun (Becky) ZHU | Common ground, we-thinking, and prosocial behaviour |
| 25. | Veronika ZILKER | An attentional explanation for the description-experience gap |

ADVICE TAKING

Understanding How People Take Advice When They Do Not Report their Priors — Mark Himmelstein

Mark Himmelstein, David Budescu

Research of advice taking frequently utilizes a Judge Advisor System (JAS) paradigm, in which a judge reports a prior belief, receives advice, and then revises their initial estimate. However, several recent studies have shown that the cognitive process of advice taking depends on whether one explicitly accesses and reports their prior or not. In cases where a judge does not report their prior, posterior belief tends to differ from cases in which they do. However, if we neglect to elicit a judge's prior, we can only study posterior belief—not belief change. We show that by treating judges' prior beliefs as missing data, we can use imputation techniques to estimate how their beliefs change without requiring them to directly report their prior. Across several simulation and empirical studies, we demonstrate both the feasibility and effectiveness of this planned missing data imputation method, as well as theoretical results regarding how people take advice when their priors are not explicitly reported before receiving advice. We discuss implications for how advice taking research like this can help better generalize experimental results beyond laboratory settings.

Advice Taking vs. Combining Opinions: Framing Social Information as Advice Increases Source's Perceived Helping Intentions, Trust, and Influence — Maxim Milyavsky

Maxim Milyavsky, Yaniv Gvili

People are constantly subject to various types of informational social influences, such as others' opinions and advice. A tacit assumption in the advice-taking literature is that decision makers treat others' opinions and advice equally. We challenge this assumption by examining differential effects of advice versus others' opinions on people's judgments. Across three preregistered experiments (N=1,716), we found that participants placed greater weight on others' estimates when presented as advice than when presented as opinions. This advice context effect substantially reduced egocentric discounting and held across various types of judgments, levels of advice givers' expertise, and for both good and ecological advice. Moreover, we found that the effect is mediated by perceived helping intentions of and trust in advice givers. Theoretical and managerial implications are discussed.

Actors and observers in advice-based decision making — Ilan Yaniv

Ilan Yaniv, Maya Enisman, Shoham Choshen-Hillel,

In making judgments and decisions, individuals fall prey to pitfalls such as perseverance and resistance to change. A related pitfall is egocentric discounting, whereby decision makers adhere to their own initial opinions and under-weight the advice they receive. Egocentric discounting is suboptimal, since it hinders full exploitation of the information contained in the “wisdom of many.” We suggest a novel approach to study egocentric advice taking, based on a fundamental distinction between actors and observers (Nisbett & Ross, 1980). We suggest that decision makers, the actors in the situation, are biased in their processing of advisory information. In contrast, observers – individuals who watch the decision makers’ behaviors – maintain a differentiated perspective, and appreciate better the added value of advice. Thus they place trust in more balanced estimates.

We conducted six studies involving estimations of the ages of people whose photos portraits were shown. We compared actors (who made advice-based estimations) and observers who merely indicated their trust in (or placed their bets on) the actors’ final estimates. Actors and observers approached differently the task of incorporating other opinions. Actors valued their own estimates, while the observers valued balanced final estimates, displaying understanding of the benefits of the “wisdom of many.”

Weight on advice in a high-stakes setting: Evidence from a game show — Erik Løhre

Erik Løhre, Torleif Halkjelsvik

Research on advice taking has demonstrated a phenomenon of egocentric discounting: people weight their own estimates more than advice from others. However, most of this research is conducted with student samples and with no or very low stakes. We used data from a game show on Norwegian TV to investigate advice taking in a high-stakes and highly public setting. In the game show, parallel to the standard procedure in research on judge-advisor systems, participants give numerical estimates for several novel tasks, and can solicit advice (another numerical estimate) from three different sources during the game.

The analyses show an average weight on advice of 0.58, indicating that participants in this context weighted advice more than their own estimates (i.e., no egocentric discounting). Of several potential predictors of advice taking and solicitation (e.g., the source of advice, own estimation success, use of intuition), we only found evidence for higher solicitation of advice with higher stakes. This, as well as the relatively high weight on advice, suggests that participants considered the advice valuable. On average, the estimates did not improve much after advice taking. The results suggest that the nature of advice taking may be different outside the lab.

Process-Consistent Modeling of Information Sampling and Utilization – Tobias R. Rebholz

Tobias R. Rebholz, Marco Biella, Mandy Hütter

Advice taking and related research are dominated by deterministic weighting indices such as ratio-of-differences-based formulas for investigating informational influence. They are intuitively simple but entail various measurement problems and restrict research to a certain paradigmatic approach. As a solution, we propose process-consistent mixed-effects regression modeling for specifying how strongly peoples' judgment is influenced by external information. Essentially, the approach differentiates between components of endogenous (i.e., final judgment) and exogenous (e.g., initial judgment and advice) nature by relying on accordingly specified multilevel models. Corresponding mixed-effects regression coefficients of various exogenous sources of information hence also reflect individual weighting but are based on a conceptually consistent representation of the endogenous judgment process. We use this modeling approach to revisit empirical findings from sequential collaboration and advice taking. Specifically, whereas we do not obtain evidence for systematic order effects in sequential collaboration, we document recency effects in the weighting of sequentially sampled advice. We further argue that process-consistent modeling of information sampling and utilization opens up new avenues for innovative research. Moreover, the proposed method is relevant beyond sequential collaboration and advice taking, with a high potential of informing research on related cognitive phenomena such as anchoring effects, hindsight biases, or attitude change.

The Jury Will Disregard This Information: Biased Judgments When Receiving Inadmissible Evidence? — Rima-Maria Rahal

Rima-Maria Rahal, Christoph Engel

The law aims to prevent bias in judicial decision-making, for instance by excluding certain evidence that may give rise to bias, such as a defendant's previous convictions. When such inadmissible evidence is introduced nevertheless, US courts often simply admonish the jury to disregard the evidence. However, the effectiveness of this remedy has been questioned, and much research has been dedicated to understanding why jurors may or may not be able to disregard evidence. In our study, we aimed to establish that bias is introduced by inadmissible evidence, and sought to show how different instructions to disregard this evidence would influence judgments. Results showed no evidence of bias in guilty judgments when inadmissible evidence was introduced. The introduction of inadmissible evidence even tended to make participants somewhat skeptical about the defendant's guilt compared to the control group. In five treatments as follow-ups with stronger presentation of inadmissible evidence collected, results also showed no evidence of bias in guilty judgments. In conclusion, the study found no evidence that jurors were more likely to convict if inadmissible evidence was presented.

AMBIGUITY

Tests of Recursive Models of Ambiguity Aversion — Pascal Kieren

Gleb Gertsman, Pascal Kieren

We study agents' preferences for ambiguity resolution in dynamic environments. We first demonstrate that popular recursive models of ambiguity make different predictions regarding the timing and graduality of ambiguity resolution. We then test the models' performance in an extension of the original Ellsberg (1961) experiment. Our results show a strong interdependence between ambiguity attitudes and preference for the timing and graduality of ambiguity resolution, consistent with the smooth model of ambiguity (Klibanoff et al., 2009). The interdependence that this paper identifies is of interest both conceptually and practically – especially for researchers using these models in applications.

Attitudes to uncertainty - similarities of three main concepts and age differences –

Michaela Michalíková

Michaela Michalíková, Jozef Bavoľár, Nicol Darbinjanová

The current research aims to explore the interrelationships in a group of three variables describing attitudes to uncertainty – intolerance of uncertainty as the general tendency not to accept uncertainty in the future, intolerance of ambiguity as the general tendency not to accept uncertainty in the present and risk perception as the tendency not to accept uncertainty associated with possible loss in the future. Moreover, it compares two developmental stages – adolescence and older adulthood – with the expectation of there being developmental changes, e.g., more negative attitudes to uncertainty in middle age. The sample included 124 participants aged 14–59 years old divided into two groups – adolescence/emerging adulthood (14–22 years) and middle age (39–59 years). Intolerance of uncertainty, intolerance of ambiguity and risk perception were found to be positively interrelated. In terms of the intolerance of ambiguity subscales, mainly discomfort with ambiguity and moral absolutism/splitting were found to explain these relationships. Age differences were only found in risk perception with higher scores in middle age. The age comparisons indicate that while the general individual differences do not change during adulthood, their manifestation with regard to the specific situations (risk perception) increases.

Impact of construal level on individual accounting choices under multidimensional ambiguity

– Divya Aggarwal

Divya Aggarwal

This study aims to examine whether individuals at low-level or high-level construal perceive ambiguous information differently, when making financial accounting choices. The study hypothesizes that individuals at low-level construal will be more sensitive to different sources of ambiguity and likely to exhibit more ambiguity aversion than individuals at high-level construal. The study also examines whether, at low-level construal, personality level difference of ambiguity attitude along with gender also influences choices made under ambiguous information. Similarly, at high-level construal, the study examines whether personality level differences in ambiguity attitude and gender influence decision-making under ambiguity.

The study comprised of 265 MBA students from an Indian business school in their first year of coursework, undergoing a financial accounting course. The data was collected through Qualtrics's online interface. The average age of the students was 24 years ranging from 19 to 36 years (SD = 2.2 years). Out of 265 students, 55% (N = 146) were males and remaining 45% (N=119) were females. The main task of the study required students to make choices among a set of pairwise decisions for a group of 8 hypothetical financial operation situations. This study contributes to the theoretical advancement of descriptive decision-making models under ambiguity

Ambiguity attitudes in sexual context — Aysil Emirmahmutoglu

Aysil Emirmahmutoglu

This paper aims at studying whether ambiguity attitudes differ in the presence of a sexual context. In an experiment I used sexual context in the source of uncertainty, in the outcome and in the combination of both. Measuring ambiguity attitudes with the aversion and insensitivity indices developed by Baillon et al. (2018), the results show that people are ambiguity seeking and ambiguity insensitive in the absence of sexual context. Ambiguity seeking behavior is robust to presence of sexual context in the source and/or outcome. Ambiguity insensitivity, on the other hand, is strongest when the sexual context appears in a natural source with real-life events. When the outcome is sexual and the source is artificially created in the lab, however, people get closer to neutrality and insensitivity disappears. The results suggest that sexual context matters, even for non-sexual decisions.

A set of ambiguity experiments guided by an entropy measure — Sebastian Telker

Christian D. Schade, Sebastian Telker

The entropy function, well established in the domains of physics and information theory, is used to derive a measurement (tool) for ambiguity of an uncertain event, more precisely a two-stage lottery. The level of ambiguity of randomly complex two-stage lotteries can now be specified and compared with one another. The experiment includes an empirical test of the resulting mathematical predictions.

In the first part of the experiment, we compare the participants' readiness to enter into lotteries that differ only with regard to the level of ambiguity, but not the expected value, the variance and the expected utility. One of these is a risk lottery, so the degree of ambiguity is 0, which is compared to the lottery with the highest degree of ambiguity. In this way, participants with ambiguity aversion are identified. In addition, we have also integrated lotteries that are only comparable regarding the expected value and examine, to what extent the various variables are responsible for the participants' readiness to pay. Part 2 contains lottery comparisons according to Holt & Laury (2002) in order to measure the participants' readiness to take risks.

The relationship between idea novelty and decision quality and the role of thinking style – Carola Wandres

Carola Wandres, Christopher Lettl

Novel ideas are an important driving force for innovation. However, prior research has found that highly novel ideas are often downgraded during idea screening. While there is empirical evidence of the existence of a bias against novelty, it is still unclear how idea novelty affects decision quality. In our research, we analyze how idea novelty affects decision quality and hypothesize that idea novelty negatively affects decision quality. Additionally, we expect this relationship to be moderated by individuals' thinking style in a way that an intuitive thinking style increases the effect of idea novelty on decision quality and a deliberate thinking style decreases the effect of idea novelty on decision quality. To test our hypotheses, we plan to conduct an experiment with a 3 (thinking style: intuitive vs. deliberate vs. control) x 2 (degree of novelty: high vs low) mixed design. With our study, we contribute to research on the bias against novelty and decision-making in the new product development context by examining how idea novelty can lead to a dysfunctional bias and giving a better understanding of what drives the bias against novelty.

Decision-making under Imperfect Information with Bayesian Learning or Heuristic Rules

Carina Burs

Information is one of the most important ingredients for decision-making. While the neoclassical assumption of perfect information is surely an important conceptual benchmark for discussing efficient allocations, it is obviously far from describing a rational choice under real conditions. In reality, optimal choices should be considered choices under imperfect information. Thus, decision-makers' information problem can be solved by two strategies. Either they collect an optimal set of information to make an optimal allocation choice under this imperfect information set or they can apply heuristic reasoning. In this paper, we suggest a formal model framework for the example of a simple consumer decision for the allocation of differentiated goods to explore information acquisition strategies in such a simple standard choice situation. Using the model variation under perfect information as a benchmark, we answer the following questions. First and most importantly, under imperfect information, can a heuristic rule substitute information acquisition as an optimal choice? Second, what is the role of risk aversion in the information acquisition process? Finally, we explore the differences to the benchmark, both ex ante the first purchase decision and ex post when repeated purchases and consumption allows for experiences with the choices made.

The Effect of Poverty on Cognitive Performance: a Systematic Review and Meta-analysis of the Causal Evidence — Pál Kolumbán

Pál Kolumbán, Barnabas Szaszi, Peter Szecsi, Aikaterini Taka

Evidence suggests that living in financial scarcity creates traps for the poor by taxing their cognitive functioning. However, prior studies testing the causal impact of poverty on cognitive performance found contradictory results. To resolve these inconsistencies, provide a more accurate estimate on the size of the effect, and explore when and on which population it emerge, we conducted a systematic review and meta-analysis. At the end of the multi-stage selection procedure, we identified 8 empirical articles with 23 observations. Our results revealed that financial scarcity has a moderate negative influence on cognitive performance. The effect is considerably smaller than the first experimental studies have suggested, but the overall picture provides support for the notion that money scarcity has a causal negative effect on cognitive performance. However, despite the fact that the topic has attracted a wide policy and academic interest, there is still only a small number of quasi(experimental) studies completed, and we could not test the effect of the moderators leaving questions open for future research.

PROSOCIAL BEHAVIOR I

Social image and social distance — Ro'i Zultan

Yamit Asulin, Yuval Heller, Nira Munichur, Ro'i Zultan

Social image concerns motivate people to behave pro-socially if others are watching—as pro-social behavior leads to an update of the observer's beliefs about the actor's intrinsic pro-sociality. Thus, the effect of being observed depends on the magnitude of the shift in the observer's beliefs. This, in turn, depends on the prior belief distribution. The more prior information available to the observer, the less effect new information has on posterior beliefs. This generates the novel hypothesis that the effect of observation on pro-social behavior increases with the social distance between the observer and the observed. Although people care more about what their friends think, they may be more motivated to impress a stranger who does not know them as well as a friend. We test this hypothesis in a field experiment. Participants were 670 high-school students who walked to generate donations for a public good. Participants were either unobserved, observed by a friend, or observed by another random participant. To identify social image concerns, we also manipulated whether effort up to a certain threshold yielded a personal benefit in addition to the public-good provision. The results provide support for the hypothesis, with age as a moderator.

The influence of automatic attention and frames on third-party punishment and compensation preferences — Claudia Civali

Claudia Civali, Valerio Capraro, Luca Polonio

People often forgo their own self-interest to react to social norm violations, like unfairness, even when not directly affected by the infraction. In four preregistered experiments (N=806), we investigated how task-irrelevant, contextual stimuli and framing effects can influence preference for punishment and compensation, two distinct ways to react to third-party injustice. In two eye-tracking experiments, we showed that people who look more at the offender's payoff are more likely to punish, and when exogenous stimulation increases the focus on the offender, people spend more to punish. We also found that people overall prefer to look at the offender, rather than the victim, and to punish rather than compensate.

This “offender bias” was confirmed in two behavioural experiments, where people were exposed either to the offender’s or the victim’s payoff: when given the choice, people prefer to reveal the offender’s payoff, and then punish; however, when randomly exposed to the victim’s payoff, the preference for punishment disappeared. This suggests that whilst people have an intrinsic motivation to search for information that matches their preference, when exposed to information they would not have chosen, they can modify their preferences. This may have implications for understanding information bubbles and ways to overcome them.

Competence promotes cooperation in one-shot economic games, even when it shouldn’t —
Alexandra V. T. de La Trobe

Alexandra V. T. de La Trobe, Lukasz Walasek, Gordon D. A. Brown

Does disclosure of high partner competence in economic interactions always promote cooperation? We find that it does not. In each of three experiments, participants played an adapted one-shot investment game with 18 different partners. Participants took on the role of the sender and were informed about the varying levels of past helpfulness and competency of their partners (the receivers). In Experiments 1a/b helpfulness was the most informative characteristic for predicting future behavior - partner competence was irrelevant. In Experiment 2, in contrast, the key characteristic for predicting future behavior was the partner’s competence. We tested four competing hypotheses about how people weigh and integrate these different reputational cues when deciding how cooperative to be. We find that in Experiment 1 disclosing high competence only promotes cooperation under specific circumstances: When the key reputational cue was helpfulness, high competence could not compensate for a low helpfulness reputation - instead, partners’ competence was completely disregarded. However, if (in Experiment 1) the partner’s helpfulness reputation was high, signaling high competence magnified cooperation levels. Finally, in Experiment 2, we found a positive correlation between cooperation levels and competence, even when the helpfulness reputation was low.

The Role of Emotional Arousal and Regulation in Positive Reciprocity: A Biological Approach — Eliran Halali

Nir Milstein, Marina Rosenblatt, Maayan Katzir, Eliran Halali

Previous research has shown that emotional arousal predicts negative reciprocity, whereas emotion regulation is related to self-interested behavior. However, research on positive reciprocity is scarce, especially from a biological perspective. To overcome biases related to self-report questionnaires, we took a biological approach to study relationships between emotional arousal, emotion regulation, and positive reciprocity. We employed the trust game, a well-known paradigm customarily used to study the often-exist conflict between positive reciprocity and self-interest. Fifty-nine participants played as the receivers, in a one-shot version of the game, and chose how much money (if any) to send back to two investors. The first investor fully trusted them, and the second investor partially trusted them. Before and during the decision, we measured participants' heart rates and electrodermal activity – a marker of emotional arousal and heart-rate variability – a marker of emotion regulation. Findings showed that electrodermal activity positively predicted reciprocity during the game, whereas heart-rate variability before the game predicted a preference for self-interest. Heart rate, both pre and during the game, predicted positive reciprocity. These findings reinforce the notion that, as negative reciprocity, positive reciprocity is also emotionally driven, whereas cognitive-control (i.e., emotion regulation) is required to maintain one's self-interest.

What stimulates pro-social behavior? Institutional design and rule following — Matthias Kasper

Matthias Kasper, Matthew Rablen, Simon Columbus, Lars Feld

How do rule-enforcing institutions affect pro-social behavior, social norms, and trust? Standard economic theory suggests that people follow rules only when the benefits of compliance exceed the benefits of evasion. In contrast, a large body of evidence from psychology finds that other factors, such as social preferences, influence decision-making. However, prior work does not investigate how the design of institutions that enforce rules affects people's willingness to follow them, their social norms, mutual trust, and willingness to punish noncompliers.

To investigate these issues, we run an online experiment including a public goods game, a social norm elicitation task, and a trust game. In the public goods game, we introduce variation in three dimensions (homogenous vs. heterogeneous groups, random vs. biased audits, and peer punishment vs. no peer punishment), resulting in a between-subjects design with seven treatments. This research design allows us to investigate several important issues with implications for researchers and policy makers. The study will be pre-registered via the Open Science Framework, including a-priori power analyses to determine the sample size. Data collection will take place via Prolific in February and March of 2023.

Benevolent machiavellianism: a study of the nature of prosocial political skills in organizations — Petr Houdek

Petr Houdek, Marek Vranka, Štěpán Bahník

Significant social harm is caused by corporations that also employ people who stand against their harmful doings but to no avail. Our study aims to uncover why these individuals cannot change their organizations' detrimental impacts. We focus on testing the lack of political will and skill to gain influence in a group as a factor hindering needed organizational change. We created a novel behavioral task in which a group of participants can withdraw funds from charities. Participants could also gain power and reduce or exacerbate the negative impact of their group. We found that participants with high political will, power motive, and preferring their own/group gains invested more in power. Conversely, we found no evidence of an association between obtaining power and favoring the interests of charities, high affiliation motive, or political skill. Thus, malevolent Machiavellians prevailed, and the groups they controlled continued to harm. The study uses extensive questionnaires and qualitative surveys of participants to gain insight into their perceptions of the task and their behavior in it.

Seven (weak and strong) beneficiary effects systematically tested in separate evaluation, joint evaluation and forced choice. — Arvid Erlandsson

Emir Efendić, Philippe van de Calseyde

Asking several people the same question often results in opposingly different answers. Think of all the times you received different purchase, vacation, or medical advice. Given a group of individuals, each answering the same set of questions, can we select accurate answers based on a cue that is thought to correlate with accuracy? Knowledge is typically dispersed across group members, and a key challenge is to identify strategies to select accurate answers in a crowd of answers. Here, we test the following strategy: per question, select the answer of the individual who was first to answer. Using responses of 810 game show contestants answering more than 7.800 knowledge questions across 270 episodes of a popular TV show, we demonstrate that such a strategy produces a set of answers that is highly accurate. Extending these findings to the medical domain, we show that deploying the same strategy when individual physicians diagnose clinical cases generates more accurate medical diagnoses. Overall, these findings provide support for a simple solution for selecting accurate answers in a crowd of answers.

Disentangling Greed and Self-Interest — Marcel Zeelenberg

Marcel Zeelenberg, Antony M. Evans, Karlijn Hoyer, Terri G. Seuntjens

Greed is the insatiable desire for more, an important economic motivator with numerous real-life implications. Theorists proposed that greed is positively related to, or even equated with (excessive) self-interest; and negatively related to other-interest (with some definitions proposing that greed must cause negative externalities, or harm to others). However, there is little empirical data testing these assumptions. We adopt an individual differences perspective and we report three survey studies to examine how dispositional greed relates to self-interest and other-interest, assessed via social value orientation (decomposed games) and via self-report (N1 = 145, N2 = 302, and N3 = 346). Confirmatory factor analyses support that the three constructs should be treated as distinct. Although greed and self-interest are positively correlated, they are differently correlated with other-interest: self-interest and other-interest are positively correlated, whereas greed and other-interest are not correlated. Importantly, greed and self-interest are also associated with distinct behavioral inclinations. These findings add to our understanding of greed and the potential harm it can inflict.

A spillover effect of altruistic cheating: When benefiting others makes you a bad guy — Anat Halevy

Anat Halevy, Shahar Ayal, Guy Hochman, Rachel Barkan

Altruistic cheating is an easily justified dishonest behavior in which focusing on others' social utility enables people to classify their actions in positive terms more freely, avoiding a negative update of their moral self-image. The current research examined when and how altruistic cheating affects subsequent unethical behavior. In Study 1, participants who had an opportunity to cheat to increase donations to charity later exhibited a greater tendency to cheat for their benefit. We term this process 'the spillover effect' where dishonest behavior spills over from justified to unjustified setting. Study 2 compared two possible drivers for this effect and revealed that moral credentials serve as a stronger driver for subsequent egoistic cheating than habituation to the level of dishonest behavior. Specifically, our findings indicated that altruistic behavior that did not involve cheating (i.e., a donation to charity) led to a subsequent higher level of egoistic cheating. Study 3 further explored the underlying explanations of the effect and showed that once moral credentials were denied, the spillover effect disappeared. Overall, our findings indicate that although cheating to the benefit of others may reflect good intentions, the moral credentials it provides may pave the way for an increase in self-serving unethical acts.

Raising the white flag: Predictors of quitting decisions — Uri Zak

Uri Zak, Judith Avrahami, Yaakov Kareev

Life is rife with decisions about whether to persist or quit, yet data on the decision maker's prospects of success and the possible alternatives are sparse. We studied the stylized case of tournament chess games, which mostly end when players resign. Using a powerful chess engine, we evaluated how bad (or not) millions of positions were when players decided to resign. On average, players resigned in positions with no actual chances of escaping a loss. However, the variance was considerable and worth exploring. In an early-stage project, we are interested in how quitting decisions vary as a function of different factors, including prior expectations of winning, the sex composition of games, and whether the game was played as part of an inter-individual or inter-team competition.

HEURISTICS & BIASES I

Better-than-average researchers: Inflated beliefs about ethical research behavior —
Amanda M. Lindkvist

Amanda M. Lindkvist, Gustav Tinghög, Lina Koppel

The better-than-average effect is the general tendency to perceive oneself as superior to one's peers on positive abilities, attributes, and personality traits. Prior findings suggest that this tendency to self-enhance is especially prominent for the moral domain (Tappin & McKay, 2017) and that the effect can be extended to enhanced perceptions of political in-group members (Eriksson & Funke, 2015). We study this cognitive bias in the population of academic researchers to answer whether there is a tendency to see oneself as better than the average researcher at following good research practice. Moreover, we analyze whether this enhancement effect extends to researchers within the same academic field as oneself. Our pre-registered hypotheses were tested using data from a large-scale survey of Swedish researchers (N = 11050). The results suggest a medium sized better-than-average effect when comparing oneself to other researchers in one's field and a small better-than-average effect when comparing researchers in one's field to those in other fields. Both effects appear to be robust across gender, age, and academic fields, with small variations in the strength of the effects.

When Half is At Least 50%: Effect of "Framing" and Probability Level on Frequency Estimates — Dr. David R. Mandel

David R. Mandel, Daniel Irwin

Expert judgment often involves estimating magnitudes, such as the frequency of expected deaths due to a pandemic or the level of sea rise due to climate change. Two experiments (Ns = 902 and 431, respectively) were conducted to examine the effect of outcome framing (i.e., half of a threatened group of individuals were described as expected to either survive or die), probability level (low vs. high), and probability format (verbal, numeric range, or combined) on the estimated survivor frequency. In both experiments, there was an interactive effect of frame and probability level that supported the authors' hypothesis that forecasted outcomes received by participants were implicitly quantified as lower bounds (i.e., the term half was interpreted as "at least half").

Responding in a manner consistent with a lower-bound “at least” interpretation was either not related or weakly positively related to numeracy, verbal reasoning ability, or actively open-minded thinking, although each of these individual difference measures was inversely related to logical coherence violations scored in the same task. These findings indicate that implicit lower bounding is not a cognitive error but rather an aspect of linguistic inference. The authors discuss important methodological and theoretical implications for future research on framing effects.

Rationally irrational: When people do not correct their reasoning errors even if they could —
Miroslav Sirota

Miroslav Sirota, Marie Juanchich, Dawn Holford

Why do people sometimes fail to correct their reasoning errors even when they are detected? Leveraging the value-based approaches to cognitive control, we argue here that when people detect an error, they decide whether or not to correct it based on the overall expected value associated with the correction—combining perceived efficacy and the reward associated with the correction while considering the costs of effort. Using a modified two-response paradigm, participants solved cognitive reflection problems twice and we manipulated the factors defining the expected value of the correction just before the second stage. In five experiments ($N = 5,908$), we found that answer feedback and reward increased the probability of correction while cost decreased it, relative to the control groups. These cognitive control critical factors affected the decisions to correct reasoning errors (Experiments 2 and 3) and the corrective reasoning itself (Experiments 1, 4 and 5) across a range of problems, feedbacks, types of errors (reflective or intuitive), and cost and reward manipulations. Thus, some people did not correct their epistemically irrational reasoning errors because they followed the instrumentally rational principle of the expected value maximisation: they were rationally irrational.

Why Leading is (Almost) as Important as Winning - The Cumulative Redundancy Bias —

Hans Alves

Hans Alves, André Mata

Competitions in sports, business, or politics often provide perceivers with cumulative standings over time. The present research suggests that people fail to accurately update their impressions from cumulative observations as they are influenced by previous standings. This cumulative redundancy bias (CRB) implies that competitors that are leading during a competition will receive more favorable evaluations, over and beyond their eventual success or failure. While the CRB has far-reaching implications, its underlying mechanisms are not fully understood. We present data from 12 experiments which suggest that the CRB is a robust phenomenon that constitutes an actual bias and that is best explained by an additive effect of cumulative redundancy.

Not All Attributions are Self-Serving: A Preference for Agency over Negative Outcomes —

Giulia Maimone

Giulia Maimone, Joachim Vosgerau, Ayelet Gneezy

Two streams of literature address attributional preferences: self-determination and self-serving preferences. While these two theories make the same prediction for individuals' attributional preferences over positive outcomes, they make competing predictions for attributional preferences over negative outcomes. Self-determination maintains that people prefer to have agency over negative outcomes. Self-serving preferences, in contrast, stipulate that people prefer to concede agency over negative outcomes. In seven preregistered experiments ($N = 3,502$), we reconcile these seemingly inconsistent attributional preferences over negative outcomes. First, we test these competing predictions and find that—consistent with self-determination—people would rather “own” their negative outcomes than externally attribute them. Overplacement and impact bias cannot explain this preference. Instead, we find that reducing the salience of agency moderates the preference for agency over negative outcomes. More interestingly, we find that sharing agency reverses attributional preferences: while people prefer having agency over negative outcomes when these are exclusively caused by a single agent (themselves or somebody else), they prefer attributing agency to others when these outcomes are jointly caused by multiple agents (themselves and somebody else).

When less is more: Subscription traps and context-dependent preference reversals —
Frieder Neunhoeffler

Frieder Neunhoeffler

This paper explores a novel menu effect in the context of subscriptions that violates the transitivity principle of rational choice theory. Providers often use pricing strategies in which long-term subscriptions are presented favorably compared to cheaper short-term alternatives. Given a low probability of repeated use, our experiments demonstrate that the attractiveness of the shorter subscription increases after its reduction to a single-use option at the same cost. This suggests that the presence of a single-use option prompts rational evaluation based on a realistic estimate of using the subscription service again. Instead, when both alternatives represent time spans, an irrational mind may discern them along the same category with the consequence that other comparative criteria come to the fore. Two-dimensional models, underlying most behavioral theories, fail to explain this type of preference reversal. Inspired by the intuition of transaction utility and the availability heuristic, we propose a generalized interpretation of salience theory to capture the described effect and test it in a series of experiments.

Most People Do Not Make Use of the Distribution of Features Within Categories to
Categorize New Objects — Florian I. Seitz

Florian I. Seitz, Jana B. Jarecki, Jörg Rieskamp

People habitually categorize objects based on their features. In each category, the object features can vary and correlate, and such distributional information can form part of people's category knowledge. However, whether people make use of a category's feature distribution to categorize new objects remains inconclusive. Therefore, we ran two experiments, that manipulated the variances and correlations of features within categories, and tested how people categorize critical transfer stimuli. The variance experiment contained a high-variance and a low-variance category with the transfer stimuli lying in between. In the correlation experiment, the transfer stimuli were located in the correlational direction of one category but closer to the other category. The experimental designs were optimized to compare a similarity-based categorization mechanism that either considers or ignores within-category feature distributions during similarity computation. Computational cognitive modeling showed that most participants did not consider the within-category feature distributions, meaning they assigned the transfer stimuli to the low-variance category and to the closer category with an incongruent correlational direction.

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These results suggest that in categorization the psychological similarity between objects mostly ignores the distribution from which the objects stem, probably due to the computational costs associated with estimating the distribution of features in categories.

Transitively cute: preferences for faces are remarkably transitive — Gabriel Vogel

Gabriel Vogel, Erik Harlugd, Petter Johansson

The transitivity of preference is a fundamental axiom of economics. In a nutshell: if you prefer A to B, and B to C, then you should prefer A to C. Failures to adhere to this principle would make agents irrational. However, whether actual people's preferences abide by this rule has been hotly debated. Empirical studies have mostly focused on choices between gambles. To complement this research, we investigated whether facial preferences are transitive. Thirty participants chose three times between all combinations of 10 faces (45 pairs). Analysis of their choice pattern showed that facial preferences are remarkably transitive. Despite a low rate of intransitive choices, virtually no intransitive sequence was repeated throughout the whole experiment. Interestingly, intransitive sequences decreased throughout the experiment (6% to 2%), being almost systematically corrected upon choice repetition. This fits with models seeing intransitive choices as errors happening despite a transitive core of preferences. We also discuss the plausibility of the existence of a cognitive mechanism designed to monitor and maintain preference's transitivity despite their volatility.

MISINFORMATION & POLARIZATION I

Measuring polarization of Covid-19 risk perceptions — Olivia Fischer

Olivia Fischer, Renato Frey

The issue of polarization has gained increasing attention in recent years. However, due to a lack of an agreed-upon definition and measurement of the phenomenon, it is difficult to determine the true extent of polarization in society. This study aims to contribute to the understanding of polarization by addressing two research questions: (1) To what degree does polarization manifest itself in the specific area of risk perceptions regarding Covid-19 measures? (2) How robust are the conclusions when different operationalizations of polarization are compared?

We implemented a mixed design with 768 participants from the United States. They were divided into two groups and presented with three scenarios (mandatory Covid-19 certificates, lockdowns, and vaccine mandates) from either a health or finance perspective. We used a Bayesian approach to estimate polarization in terms of the bimodality coefficient. We found credible polarization in six out of twelve conditions, particularly in those that have personal consequences. Additionally, we compared the bimodality coefficient to seven other polarization measures and found relatively strong agreement between them. The findings have important implications for public policy and highlight the importance of considering the context in which polarization is measured and how it is conceptualized.

A Bias Attribution Model of Belief Polarization — David Young

David Young

Why do populations contain groups who persistently disagree with each other on political issues, despite exposure to shared evidence and arguments? I suggest one part of the answer may be that these groups have different prior beliefs about which sources of political information are biased. I present evidence from three studies showing that people condition their belief updating on the perceived bias of sources (Study 1, N=145) and infer that sources who contradict known facts are biased (Study 2, N=56).

Together these phenomena can cause belief polarization in the lab (Study 3, N=278): people shown different evidence about which of two media sources is more accurate form differential beliefs about which is more biased, and these beliefs predict the direction and amount of belief updating when exposed to conflicting claims from those sources. Moreover, I show that all these phenomena can be explained by a Bayesian Network which models source testimony as a product of a person's expertise, bias, and the ground truth. This suggests persistent belief polarization at the societal level may be a result of rational belief updating at the individual level.

Political polarization shapes risk-taking in a simulated pandemic outbreak — Sebastian Hafenbrädl

Jan K. Woike, Patricia Kanngiesser, Ralph Hertwi, Sebastian Hafenbrädl

When Covid-19 became politicized in the U.S., Republicans and Democrats became polarized in their adoption of risk-reducing behaviors, such as wearing masks. Does this polarization reflect differences between partisans in terms of deeply seated preferences for risk-taking in pandemic-like situations? Or did their political identity color their preferences and beliefs when Covid-19 became politicized?

In a pre-registered online experiment (Total N = 800) using our previously developed transmission game paradigm, we compare the behavior of 400 Trump and 400 Clinton voters in a pandemic-like situation. In a 2 x 2 between-subjects design, the game is either framed neutrally (as a color-change game) or as representing the COVID-19 pandemic (labeling risk-reducing behavior as mask-wearing), crossed with either an injunctive norm (modeled after the slogan "Stay home – protect the NHS – save lives") or no additional information. The COVID-19 framing strongly reduces risk-taking overall, and reduces the effect of an injunctive-norm intervention – especially among political liberals. Political orientations and preferences indeed play a significant role in explaining behavior in the COVID-19 context, and research aiming to investigate the effectiveness of interventions should take them into account. Moreover, the framing of experimental paradigms matters greatly, especially when investigating politically charged contexts, situations, and behaviors.

Evolution of polarized political positions: a computational agent based model — Gustavo O. Aggio

Gustavo O. Aggio

In the last few years, in several countries with different degrees of democratic consolidation or tradition, the political polarization by voters has been an evident fact in political manifestations and in engagement in social networks debates before and after elections. These collective behaviors have resulted, in some occasions, in the election of populist politicians –that are far from the central political spectrum– for main mandatory positions, like presidents and premiers, sometimes also with far from democratic and liberal (in European tradition of the use of the term “liberal”) economic, social and political agenda. In relation with economic and game theory, these facts are against the expected result of the so-called Median Voter Theorem, which predicts a sort of central confluence of collective decision in a majority election. The main objective of this paper was to test the following conjecture with a computational agent based model: “a polarized political distribution can emerge from an initially centralized normal shaped one”, the result answer is positive. In some configurations and some initial conditions, the resultant distribution after several interactions is bimodal.

Belief Updating with Misinformation — Lars Wittrock

Martin Strobel, Elias Tsakas, Lars Wittrock

Uncertain information is frequently confirmed or retracted after people have initially heard it. We study how people respond to such information about previous information. We investigate three closely related questions: 1) How do people update their belief in response to being told a previous signal was (un)informative, 2) What is the effect of verifying the informativeness of a signal ex-ante rather than checking information ex-post, and 3) Do past information checks affect how people react to new uncertain information in the future? To answer these questions we conduct two (online) experiments using a novel modification of the classical ball and urn framework. It is deliberately abstract to avoid the influence of motivated reasoning or other situation specific circumstances. We find that the majority of subjects react to information about information incorrectly. Importantly, we can predict people's belief after the uncertain information is retracted or confirmed based on their initial response. Moreover, after multiple consecutive retracted signals people's beliefs are dispersed and few people hold accurate beliefs. Confirmations or retractions in the past do not seem to affect how people respond to new uncertain information in our setup.

Polarization and Group Perceptions — Amy Bruck

Amy Bruck, Ilana Ritov

Growing polarization between social groups is a major problem for modern democracies. How we perceive social groups different from our own has a profound influence on our relations with those groups. Further influence is exerted by our notion of how these groups perceive or what they believe we think (termed meta-perception). Studies focusing on US political groups, found that people tend to be biased when evaluating an out-group member's view of one's group. The current study investigates whether meta-perceptions of emotion are biased in the context of Israeli political groups (left-wing and right-wing) and most importantly, whether group meta-perception changes in the context of a group compared to a single identified individual. 125 left-wing and right-wing Jewish-Israelis participated in the study. Significant differences in emotion towards the out-group and meta-perception of emotion were found, indicating biased meta-perceptions. Consistent with our hypothesis, a significant interaction effect was found suggesting that the difference in actual emotion and meta-emotion was smaller when respondents considered a single identified out-group member than when considering the entire out-group. Future research should strive to examine whether this effect occurs among other social groups and look at other factors that might influence biased group perception and meta-perception.

Intentional Anchoring? — Adam Harris

Adam J. L. Harris, Tom Phillips, Shamhethan Bhaskaran, Jozefina Krasniqi, David R. Shanks

Anchoring effects are prevalent, occurring even when the anchor is explicitly shown to be randomly generated. It is commonly assumed that anchoring is automatic and unavoidable, but this assumption has received little direct investigation. Six studies tested the volitional nature of anchoring effects. Participants desired to view an ostensibly random anchor and indicated that they would use it to inform their own absolute estimates (Studies 2-4), and indicated that they had used an anchor to inform their estimates (Study 6). Anchoring was stronger for participants who indicated that they intended to use (or had used) the anchor value to inform their estimate (Studies 3, 4, 6). We also replicated and extended a previous demonstration that anchors have negligible effect when they are judged to be poor estimates of the target quantity (Studies 1, 4, and 5). Although anchoring was not eliminated in participants who reported that they did not intend to use the anchor value, the results overall suggest a substantial explanatory role for intention and awareness in the generation of anchoring effects.

Emotions and Disclosures: Calm versus Frustrated States — Christos Themistocleous

Christos Themistocleous

This research investigates emotions and their influence on disclosure decision-making. The paper is interested in the impact of the visceral states (Loewenstein, 2000) on disclosure risk-benefit assessments and whether frustration influences divulgence on three fronts. First, whether frustrated individuals over-disclose or clam-up compared to calm ones. Secondly, whether frustration will affect the accuracy of assessments in relation to contextual relevance when requested to disclose new information. Lastly, whether frustration leads to greater reliance on default settings pertaining to consent of data use or customisation, where the latter signals consent to less data uses.

Hypotheses are tested using experiments with the treatment group subjected to the frustration-inducing exercise prior to the disclosure assessment segment. Through this examination, the present study investigates emotions, and specifically frustration, and how it can amplify imperfect rationality for divulgence thus positioning consumers in risky, vulnerable disclosure situations.

RISKY CHOICES I

Cumulative Prospect Theory and Psychological Distance: Self-Other Differences in Decision-Making Involving Risk — Vanessa C. Clemens

Vanessa C. Clemens, Andreas Glöckner

Risky choices are not only made for oneself but instead are often made for others. Using cumulative prospect theory (CPT) as a framework, we conducted two preregistered studies aimed to test assumptions derived from construal level theory (CLT) and risk as feelings hypothesis (RFH) regarding self-other differences in risk preferences. CLT postulates that desirability concerns are more relevant than feasibility concerns in choices for others vs. for oneself, captured by respective changes in sensitivity to outcomes and sensitivity to probabilities. According to RFH, we expected sensitivity to probabilities to be higher and loss aversion to be lower in choices for others due to a decrease in anticipated affect.

Participants (N_{Total} = 219) made incentivized risky choices for themselves and for another anonymous participant in two online studies. Applying a structural estimation method, we simultaneously estimated CPT parameters for choices made for oneself and for others. Our data does not support assumptions made by CLT. Instead, we found partial evidence for the role of anticipated affect as indicated by lower loss aversion in decisions for others. Importantly, we found evidence for a “less attention, more noise approach” as participants chose significantly less consistently and took less time when choosing for others.

Operating on verbal probabilities and (precise and imprecise) numeric probabilities —

Mandeep K Dhami

Mandeep K Dhami, David R Mandel, Georgina Gray

Organizations operating in consequential domains such as climate change and intelligence analysis prefer to communicate probabilistic information verbally. In order to overcome the vagueness of verbal probabilities, organizations have adopted standardized lexicons, where pre-selected words are assigned numeric ranges (e.g., likely [65-85%]). We examined people's ability to add and subtract probability information presented in numeric and non-numeric formats, and examined the effect of resulting estimates on their decision-making. In two experiments using mixed designs we manipulated probability format and mental operation (addition, subtraction).

Controlling for numeracy, Exp 1 (N = 130) found that mean absolute error in individuals' probability estimates (of the targeting accuracy of an anti-satellite weapons system) was significantly less for the point numeric value format than the numeric range or verbal probability-plus-numeric range formats. Similarly, Exp 2 (N = 122) found that mean absolute error in estimates (of the efficacy of a cancer treatment) was significantly less for the point numeric value format than precise numeric value with a margin-of-error format. Regression analyses showed that participants' estimates were predictors of their decisions (Exp 1: launch strike, Exp 2: recommend cancer treatment). These findings contribute to our understanding of how people use probabilistic information communicated in different formats.

Decision making under risk does not differ for gains and losses when decision goals come to play — Laura Mangold

Laura Mangold, Jana Jarecki, Jörg Rieskamp

Repeated risky choices to reach goals in a limited time, such as “earn at least 32 in five choices,” represent a dynamic problem of resource accumulation. Psychological findings have shown that the presence of goals systematically affects risky choices. We investigate framing effects in such risky choices with goals. Specifically, we examine the impact of classic outcome framing (gains vs. losses) and state framing (positive vs. negative resource states) on repeated risky choices with goals. The results (N=100) revealed that in risky choices with goals people's risk preferences show no classic framing effects: risky choices did not differ between gambles with gains or losses, nor did behavior differ between negative and positive resource states. We find, however, a consistently strong effect of the goal on risky choices independent of the framing conditions. Computational modeling showed that a dynamic version of prospect theory, with a goal-dependent reference point, best described 87% of participants. This model implies that outcomes are psychologically re-framed as gains or losses depending on the state-goal distance. Our findings suggest that humans use goals as guides for risk taking and that risk taking does not differ for gains and losses when decision goals come into play.

How to improve the measurement quality of behavioral tasks eliciting risk preferences — Steve Heinke

Steve Heinke, Oliver Schürmann, Sandra Andraszewicz, Jörg Rieskamp

Investigating the risk preferences of decision makers is important for researchers studying decision making and professionals in a variety of fields who give advice. Behavioral tasks, which infer a person's risk preference from their observed risk-taking behavior with real consequences, should be less susceptible to “cheap talk” than self-report measures. Also, they are supposed to be more easily generalized to predict behavior in new decision situations. However, they often have low retest reliability, meaning that a decision made at one time may not predict a decision made at another time within the same task. We suggest that increasing the engagement with tasks through changes in the choice architecture can improve the retest reliability of behavioral tasks.

We developed a new measure that includes features of self-report measures, such as providing contextual background narratives for otherwise abstract decisions, including both gains and losses, eliciting multiple decisions, and varying the size of outcomes. We compared this task with other common behavioral tasks and self-report measures. We found that the proposed task has a higher test--retest correlation, driven by observing multiple decisions, providing context, and including gains and losses. We discuss the challenges of and propose new directions for eliciting risk preferences.

Evaluating systematic deviations in behavioral measures of risk-taking depending on the structure of the task — Kevin Kapadia

Kevin Kapadia, Coco Tang, Richard John

Despite the practical usefulness of behavioral risk-taking measures, several conceptual and psychometric issues have emerged over the past three decades. We report results from validity studies demonstrating systematic deviations in behavioral measures of risk-taking depending on the structure of the task, i.e., risk vs. uncertainty vs. ignorance, and whether risks are monotonically increasing, decreasing, or constant. We present data both at the individual game level and aggregated across games for individuals to estimate utility functions and risk-tolerances from behavioral game data. We further examine the convergent validity of these utility functions across different behavioral measures

Testing Resource-Rational Strategy Selection as a Model of Risky Choice — Florian Bolenz

Florian Bolenz, Thorsten Pachur

Modeling human decision making under risk with cognitive (mostly heuristic) strategies can account well for data on information processing, such as patterns of predecisional information search. However, the predictive power of cognitive strategies for what decisions people make has been limited in comparison to cumulative prospect theory. We tested, how well a model of resource-rational strategy selection can account both for people's choices and for the underlying information processing. This model assumes that for each individual choice problem, a decision maker selects a cognitive strategy from a strategy toolbox by trading off a strategy's payoff against its cost. In two data sets of risky choice, the resource-rational strategy selection model predicted choices better than single-strategy models and showed close or equal performance to cumulative prospect theory.

Model predictions were in line with predecisional information search data, but not with response time data. Moreover, our analysis shows that it is still unclear how a decision maker could estimate a strategy's payoff from features of the choice problem, which is a key assumption of the model. Our work highlights both the potential and the remaining challenges of the resource-rational strategy selection model as a model of risky choice.

Optimal risky choices with goals: Modeling the optimality increase in people's choices to reach goals — Laura Mangold

Laura Mangold, Jörg Rieskamp, Jana Jarecki

People often face repeated risky choices to reach a future goal in limited time, such as making 5 investments to earn \$1000. This problem has an optimal solution, but people's choices tend to become optimal only with less choices left to reach the goal—an optimality increase. We investigate three formal cognitive explanations that can capture this effect: (1) strategy shifting: shifting decision strategies from simple to optimal when approaching the goal (2) goal discounting: processing far goals differently to near goals (3) error reduction: less errors over time. Choice data (N=100) from a goal-achievement risky choice task, in which people showed a clear optimality increase (initially 52%, later 92% optimal choices), revealed some evidence for strategy simplification. Strategy shifting assumes that people initially do not find the optimal solution, because of its computational complexity; instead they use a less complex heuristic that processes option's probabilities. Then people switch to the optimal solution as it becomes more feasible in later choices. Our work suggests that people flexibly change decision strategies depending on how far ahead into the future they need to look.

The valence of mental imagery predicts people's willingness to take risks: Initial evidence using the Dynamic Mental Imagery Task (DMIT) — Jakub Traczyk

Jakub Traczyk, Agata Sobkow, Tomasz Zaleskiewicz

We developed a novel cognitive task for investigating how mental imagery may inform decision making under risk and uncertainty—the Dynamic Mental Imagery Task (DMIT). The DMIT tests the iterative and dynamic nature of decision making by continuously registering mental images of risky activities. In our model, we predicted that the valence of mental images of risky activities might initiate approach/withdrawal motivational tendency, guiding decision-making process. In the present study, participants (N=120) were presented with brief descriptions of 20 risky activities and instructed to visualize all mental images evoked in response to each description before making a decision. Participants were asked either to (1) indicate all negative and positive mental images by pressing an appropriate key or to (2) generate mental images without reporting them. We found that participants who were instructed to report their mental images were more likely to engage in risky activities than participants without such an instruction. In line with our predictions, we documented that more positive(negative) mental images increased(decreased) the likelihood of engaging in risky activity. We initially showed that DMIT provides novel insights into studying decisions under risk and uncertainty and can be used to investigate the relationship between mental imagery and choice behavior.

The format matters: The impact of the 1-in-X format on actual decisions — Stefania Pighin

Stefania Pighin, Gloria Berenisse Castro Davalos, Lucia Savadori

The 1-in-X numerical format (e.g., 1 in 200) has been shown to increase risk perception, as compared to the N-in-NX format (e.g., 5 in 1000). However, the impact of this format on actual choices has not yet been proven. In five online experiments (N = 650), we investigated whether the 1-in-X format could bias choices between truly incentivized options. Participants were endowed with 1 euro and then presented with a choice between two options: a sure loss or a lottery with the chance to lose the entire endowment. This chance was presented with either the 1-in-X or the N-in-NX format.

In three experiments, in which the two options had equal expected values and the lottery was described with different degrees of concreteness, participants were significantly more risk-averse when the chance was described using the 1-in-X format than the N-in-NX format. The same effect was replicated when the sure option had a slightly inferior expected value (Experiment 4), showing that the 1-in-X effect can also lead to disadvantageous choices. The effect, however, disappeared when the difference in expected value increased (Experiment 5). Implications for risk communication and a possible interpretation of the results will be discussed accordingly.

Who shows the Unlikelihood Effect - and Why? — Moritz Ingendahl

Moritz Ingendahl, Johanna Woitzel, Hans Alves

Recent work shows that people judge an outcome as less likely when they learn the probabilities of all single pathways that lead to that outcome, a phenomenon termed Unlikelihood Effect (Karmarkar & Kupor, 2022). The initial explanation of this effect is that the low probabilities trigger thoughts that the outcome is rather unlikely. We first set out to test anchoring as an alternative explanation. However, after one failed replication, we detected through a re-analysis of the original studies that the Unlikelihood Effect is largely driven by a small subset of people who give extremely low likelihood judgments. Nine preregistered studies (total N = 3210) show that some of these people are unaware of the total outcome probability and misinterpret the given probabilities. Controlling for these factors statistically and experimentally substantially reduces the proportion of people giving extremely low likelihood judgments and thereby also the Unlikelihood Effect. Our results question whether the Unlikelihood Effect is based on a thought-triggering process. Instead, it seems that the Unlikelihood Effect reflects people's general struggles with encoding and understanding probability information.

PROSOCIAL BEHAVIOUR II

Charitable Donation Theories in the Wild: Evidence from a Large Online Donation Platform —
Tom Gordon-Hecker

Coby Morvinsky, Tom Gordon-Hecker

We use a large dataset of over one million online donation campaigns and their associated photos to study whether findings from the charitable giving literature can be replicated in field data. Our results revealed an identified victim effect such that campaigns were more successful when including a human face in their associated photo. Contrarily, we did not observe a singularity effect, as campaigns with a single human face had similar success rates as those with multiple faces. The results regarding scope sensitivity were mixed- campaigns with more recognizable faces in their associated photo were more likely to reach their goal, and raised donations from more donors, but the average donation of each donor was not affected. We discuss the importance of large data in replicating and validating existing behavioral theories.

On trait self-control and altruistic behavior — Haim Assor

Haim Assor, Eliran Halali

Previous findings demonstrate that high levels of, both trait and situational, cognitive-control are associated with altruistic behavior. This pattern was demonstrated with various paradigms measuring helping behavior, as well as with the original giving version of the dictator game. These results suggest that people are automatically/intuitively selfish, whereas altruism requires the use of cognitive-control. However, a recent work found a reversed pattern of behavior in a taking version of the dictator game in which participants are introduced with an opportunity to take from another rather than to give. Additionally, a recent meta-analysis found, in the giving version of the game, that women (but not men) show reversed pattern of behavior following different cognitive-control manipulations (e.g., intuitive/deliberative mind-set). In three experiments, we reexamined the role of cognitive-control in altruistic behavior using both the giving and taking versions of the dictator-game. We used two different cognitive-control manipulations in the first two experiments, and measured trait self-control in all three.

We found no effect for manipulated cognitive-control, nor an interaction with game version or gender. Importantly, in all experiments, across all variables, we found a positive correlation between trait self-control and altruistic behavior, reinforcing the notion that people are automatically/intuitively selfish.

Between self-interest and social preferences - A neuromodulation approach to establish the role of cognitive-control — Yoni Slater

Jonathan Slater, Haim Assor, Michal Lavidor, Eliran Halali

In many daily social situations, and particularly in social exchange situations, a conflict exists between selfish motives and social considerations. There is an ongoing debate about whether the nature of social preferences is automatically driven (and thus deliberate actions are necessary to ensure economic self-interest) or whether it requires cognitive control (suggesting that self-interest is the primary motive, which needs to be constrained by inhibition). Interestingly, two different inhibitory brain regions with different and unique inhibitory functions were found to be involved in resolving the often exist conflict between social preferences and self-interest in social interactions, the right dorsolateral-prefrontal-cortex (rDLPFC) and the right ventrolateral-prefrontal-cortex (rVLPFC). In the present work, we applied anodal transcranial-direct-current-stimulation (tDCS) over the rDLPFC (study 1) and the rVLPFC (study 2) to enhance the cortical activities of these regions among ultimatum game responders. In response to unfair offers, we found that stimulation of the rDLPFC increased reciprocal behavior at the expense of economic self-interest. In contrast, stimulation of the rVLPFC increased self-interested behavior at the expense of fairness considerations. Taken together, these findings suggest that self-interest and social preferences have distinguished cognitive control systems, implying that both motivations are automatic processes.

Moral Rules and Social Preferences in Cooperation problems — Ernesto Gavassa Perez

Ernesto Gavassa Perez

Models of prosocial preferences allow a trade-off between one's own social orientation and one's selfishness. This paper presents a new model where trade-offs are explicitly excluded by moral constraints to the choice space of individuals. I present two moral constraints formulated from an impartial spectator standpoint: blame avoidance and praise seeking. I test at the individual level, and against canonical models of social preferences, the extent to which moral rules can predict attitudes to cooperation in public goods games. I find that moral rules successfully predict cooperation, and that are complementary to social preferences in our understanding of social behaviour.

How Distorted is the Moral Self? Differences between Hypothetical and Real Donation Decisions — Matthieu Legeret

Matthieu Legeret, Moritz Gruban

Despite evidence pointing to differences between hypothetical and real moral decisions, experimental research in social sciences often relies on hypothetical measures. To assess the extent of these differences, we conducted three experiments on donation decisions. We first ran two studies on Amazon Mechanical Turk (MTurk). In Study 1, we examine how levels of wealth affect the difference between hypothetical and real donation decisions ($n = 1132$). In Study 2, we manipulate the perceived ownership of the donation by framing donation decisions as either giving to or taking from a charity ($n = 1023$). To substantiate our research, we replicate Study 2 in an online experiment with a student sample ($n = 516$). Our results show that hypothetical donations are systematically higher than real ones, although the difference between hypothetical and real donation decisions is not affected by levels of wealth. However, we find that framing has an asymmetrical impact on the difference between hypothetical and real donation decisions for MTurk workers: whereas individuals overstate how much they would give to a charity, hypothetical and real decisions to take from the charity did not differ. On the contrary, participants from the student sample showed an overestimation of the donations in both framings. We conclude that hypothetical donation decisions fail to reflect real ones, and even more so on MTurk than in laboratory experiments.

Decision making about organ donation of a relative in emergent donation procedures: results of a fieldwork study — María Soria-Oliver

María Soria-Oliver, Ruben García Sánchez, José Manuel Martínez, Jorge S. López, María Jesús Martín, Alberto Barceló, Ricardo Lamelas

Objectives: To explore decision making processes of families that experienced request for organ donation of a relative in an emergent procedure called Intensive Care for Organ Donation (ICOD) which involves discussing potential donation before death has been declared.

Methods: Qualitative cross-sectional study by means of semi-structured interviews with intentional sample of 27 Spanish families who experienced request for organ donation of a bereaved relative in the context of ICOD. Interviews explored family perceptions across the different phases of the whole process. Interviews were recorded, transcribed and analyzed by means of Thematic Analysis and Grounded Theory approach with NVivoV12®.

Findings: Relatives decision making about ICOD consent is performed mainly by heuristic processes. The most relevant heuristic decision rule is taking as guide the knowledge or beliefs about patient's will about organ donation. When such will has not been expressed by the patient, it is inferred by relatives. Relatives perceive limited influence on their decision of the performance of the transplant coordination teams.

Discussion: Key influential factor on family decision about ICOD request is similar to other donations procedures. However, other potential factors could perform a more implicit but relevant role.

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Common ground, we-thinking, and prosocial behaviour — Bijun(Becky) Zhu

Bijun(Becky) Zhu, Nick Chater, Hossam Zeitoun

We examine the impact of common ground, and different levels of perceived common property on people's prosocial behaviour through a 2×3 experiment based on the dictator game. We hypothesise that common ground (whether the receiver is entirely unaware of the game), and different levels of perceived common property may determine whether people engage in prosocial behaviour. We suggest that these factors may shape which norms dictators infer are appropriate through "we-thinking".

Our results show that dictators with common ground give more money than those without. However, this effect is only weakly significant with high levels of perceived common property (when the dictator perceives the money as “ours” not “mine”). In contrast, manipulating perceived common property has a large direct effect on the amount given by the dictator. We also find that common ground increases dictators’ perception of the money being “ours”, perhaps because common ground triggers “we-thinking”, and hence increases the amount given. The results suggest that social norms explain dictators’ choices better than social preferences such as altruism and guilt aversion. Specifically, dictators’ prosocial behaviour is more likely to result from aiming to infer and conform with social norms rather than achieving particular outcomes.

How emotional dynamics of employees in service organizations influence prosocial behavior following witnessing rudeness — Ido Zigdon

Ido Zigdon, Dorit Efrat-Treister, Coby Morvinski

Witnessing rudeness, a low-intensity negative behavior that violates norms of civility, incurs enormous costs for organizations. It is especially impactful in service and healthcare organizations where prosociality is critical to performance quality, both of which were shown to be hindered by witnessing rudeness. Literature focusing on emotional dynamics related to witnessing rudeness, however, indicates that subsequent prosocial behavior varies depending on the emotional mechanism at play. Specifically, empathetic reactions of compassion vs. empathetic distress might be crucial to understanding how people behave after witnessing rudeness. We argue that feeling compassionate can make the witness more emotionally resilient and can even flip some of the evident negative effects of witnessing rudeness on prosocial behavior. Conversely, we argue that feeling distressful can make the witness more emotionally vulnerable and exacerbate said negative effects. In two lab studies, we examine how rudeness affects prosocial behavior. Study 1 (N=88) shows the emotional effect of witnessing rudeness and its subsequent effect on individuals’ prosocial behavior. Study 2 (N=273) shows how an intervention of projecting media of compassionate acts before witnessing rudeness fares against other types of media in facilitating or hindering prosocial behavior. These results have important implications, both on practical and theoretical grounds.

PREDICTING & FORECASTING

The mechanisms of predicting other people's decisions — Erik Stuchlý

Erik Stuchlý

It is commonly accepted that decisions for oneself are made by accumulating evidence for the available options, until the choice of one option has been triggered. As such, it seems plausible that predicting the decisions of others could be achieved similarly, by simulating the other person's evidence accumulation process with one's own cognitive mechanisms. If people use their own mind to simulate and predict the decisions of others, then biasing an individual's own decision-making process should result in a corresponding bias when they make predictions. To test this, we first biased participants' risk perception ($n = 172$) by adapting them to a high-risk/low-risk context when they made decisions for themselves, and subsequently asked them to predict the decisions of a risk-seeking and risk-averse (hypothetical) agent in a medium-risk context. On average, participants in the high-risk adaptation group predicted a more risk-accepting behaviour than those in the low-risk group, indicating that the predicted decisions were made with participants' own biased decision-making system - consistent with the simulation hypothesis. Surprisingly, this effect was only present during prediction for the risk-averse, but not risk-seeking agent, suggesting that the mechanisms of prediction may depend on the specific characteristics (e.g., similarity) of the other person.

Successful prediction can promote an illusory sense of comprehension — David J. Grüning

David J. Grüning, André Mata

We propose that individuals incorrectly interpret their success in predicting an event as an indication that they understand the event's underlying mechanism or process. We term this illusion prediction-comprehension bias (PCB) and conceptually locate it within the framework of reverse inference logic. In a set of four experiments ($N = 552$), we demonstrate this bias and identify three psychological factors that produce it: Feedback participants receive about their prediction accuracy (Experiment 1), consistency with which a cause and its effect are presented together (Experiment 2), and fluency of an observation brought about by the number of times it is repeated (Experiment 3). In Experiment 4, we replicate the results of Experiment 3 and explore the bias's underlying mechanism.

By verbal description, the inference logic from comprehension to prediction is either discredited or promoted. We find first evidence that respondents use the perceived validity of inferring prediction from comprehension (a sound inference) as an indicator for when to draw the reverse inference (comprehension from prediction) that underlies the PCB. This finding points to the PCB stemming from failed reverse inference logic. In a running study 5 we attempt to replicate this result by manipulating participants' experiences with inferring prediction from comprehension.

Premature Predictions: Forecasters Get Less Credit for Predictions Made Too Early — Celia Gaertig

Robert Mislavsky, Celia Gaertig

When should forecasters make predictions? Many people believe that they will get more credit if they make predictions far in advance of an event and may therefore feel compelled to do so. However, in five pre-registered studies (N=4,908), we find that forecasters are actually given less credit (e.g., are rated as less competent) when they make correct predictions far in advance of an event. We find strong evidence that this is because observers perceive the influence of chance factors to be higher for events far in the future. This suggests that participants perceive those who make correct forecasts about long-term events to simply be luckier than those who make correct forecasts about near-term events. A practical implication of this research is that forecasters may be better off waiting to make predictions until the outcome is more certain and beyond the influence of chance factors.

The probability of likely. Do standards of verbal probabilities for graded or multiple outcomes make sense? — Karl Halvor Teigen

Karl Halvor Teigen, Marie Juanchich, Erik Løhre

Forecasts and assessments of uncertain events in finance, medicine, climate, and national security, are often described in verbal terms like likely, unlikely or uncertain. Some international agencies, like NATO, IPCC and EFSA have adopted guidelines for how such terms are used and understood. For instance a “likely” event should mean an outcome with a probability of 60-90%. However, it turns out that these standards primarily make sense for binary (dichotomous) events that can occur or not occur, whereas the verbal terms are often used to qualify estimates of graded and multiple outcome events like costs, level of sea rise, or the incidence of a disease in a specific population.

We demonstrate in six studies with lay participants ($N = 2,228$), with probability distributions presented visually in graphs, that “likely” ranges will not reflect proportions of the curve but rather their position in the distribution as centrally or peripherally located. A narrow, representative range will be described as “likely”, despite having a probability of less than 20% to occur, whereas a larger range in the tails will not. Thus standards for what “likely” means will be misleading in a context of continuous amounts.

Eliciting full distribution beliefs when forecasters can improve predictions via costly information acquisition — Thomas de Haan

Thomas de Haan, Paolo Crosetto

We develop an intuitive, Click-and-Drag interface to elicit belief distributions. We test this interface against the state of the art in the experimental literature – a text-based interface, multiple sliders, and a distribution-manipulation interface similar to the one used at Metaculus, a crowd-forecasting website.

By means of a pre-registered experiment we collect data on the convergence speed and accuracy of reported beliefs in a series of induced-value scenarios varying by granularity, shape, and time constraints. We also collect data on ease of use. Results show that the Click-and-Drag interface outperforms all others by accuracy and speed, and is more intuitive. The Click-and-Drag interface is openly and freely available at <https://beliefelicitation.github.io/>

Next to this, we report the results of a next experiment where we use the Click-and-Drag interface to re-address the question how to best incentivize forecasters, but now in a setting asking for full distribution beliefs over an outcome space. We assess the impact of proper scoring rule incentives on the performance of forecasters and on their likelihood to invest in improving their forecasts. We do so in a new information acquisition paradigm, that goes beyond what can be achieved by traditional induced-value truth-revelation paradigms used in the belief elicitation literature.

Belief in Momentum: When Do People Expect Success to Continue? — Luxi Shen

Luxi Shen, Evan Weingarten

When life proceeds as usual, people expect a booming economy to continue growing and a streak shooter to continue hitting. We propose and find that people predict a performer to continue their streak not because life becomes easier (i.e., non-skill factors), but because they perceive the performer has gotten better (skill factors) as long as the performer proceeded as usual (vs. if they deviated). Six preregistered experiments (N=2,995) suggest that predictions of a performer's performance and skill implicitly follow operant learning principles: regular, fixed-ratio reinforcement schedules promote skill improvement, though the nature of the deviation from regularity matters. That is, a break in action both reduces perceived regularity of an action and its likelihood of success through inferred skill change. However, deviations through speeding up differ from those in which people slow down, and deviations in which only one person takes a break (vs. others don't) differs from when everyone takes a break. Further preregistered follow-up studies explore implications for skilled actors and what factors contribute to perception of skill change.

Is behavioral economics predictable? — Daniel Navarro-Martinez

Daniel Navarro-Martinez, Daniel Banki, Sergio Pirla

We investigate the extent to which the knowledge generated by the field of behavioral economics was already known by lay people. To do this, we asked people to predict a collection of foundational findings in this field. Using textbooks, we put together a list of 14 basic phenomena in behavioral economics, including framing, altruism, mental accounting, reference dependence, etc., and we selected representative experimental studies for each of them. Our participants were presented with detailed descriptions of the experimental designs and were asked to predict what would happen in each condition and to explain why. The predictions were then classified as correct or incorrect according to preregistered criteria. More than 50% of the participants correctly predicted 11 of the 14 phenomena, ranging from 60% (endowment effect) to 93% (negative reciprocity). Moreover, many participants provided explanations for the effects that were in line with established ones in this field. These findings suggest that a substantial proportion of foundational knowledge contributed by behavioral economics was already known by lay people, which has important implications for research priorities and for the potential to educate people based on their own knowledge.

The Forecasting Proficiency Test: A Practicable Assessment of Forecasting Skill — Mark Himmelstein

Mark Himmelstein, Ezra Karger, Michael Page, Pavel Atanasov, Philip E. Tetlock,

Some people are better at making predictions than others. From forecasting tournaments to surveys of professional forecasters, numerous studies have concluded that judgmental forecasting is a measurable and reliable skill. But how can the best forecasters be identified in practice? What methods are available to practitioners looking to evaluate the quality of individual analysts? Using insights drawn from the literature on identification of forecasting talent, we develop and validate the Forecasting Proficiency Test (FPT), a practical assessment of general forecasting skill that can be administered in one hour. The FPT combines gold standard evaluation of actual prediction accuracy based on question stems adaptable to arbitrary time horizons with silver standard intersubjective, behavioral, and freestanding predictors that can be evaluated immediately in real-time. We validate the method on a large sample ($N \approx 10,000$) of forecasters by identifying the combination of methods that most reliably predict out-of-sample forecasting accuracy and minimize the time lag between elicitation and scoring. The test itself can be used by practitioners across domains to evaluate the talent of individual analysts.

VACCINATION

Unrealistic Comparative Optimism for getting infected with COVID-19 - An individual participant meta-analysis — Lars König

Lars König, Frank Renkewitz

We conducted an exploratory individual participant data meta-analysis regarding Unrealistic-Comparative-Optimism (UCO) for the event "contracting COVID-19". To our knowledge, this is the first meta-analysis of UCO for an individual event. Further, we reanalyzed individual participant data, reviewed the most important findings regarding the impact of UCO on the course of the pandemic and assessed the quality of the included studies. We analyzed the individual participant data with an unbalanced cross-classified three-level random effects model (CCREM). Participants (level 1) are nested in study × nationality combinations (level 2) which in turn are nested in first authors (level 3). On average, we observed a Cohen's d of 0.322 (SE = 0.075) with significant level 2 ($\sigma^2=0.006$) and level 3 ($\sigma^2=0.075$) variance. Further, the number of scale options and the measurement method were found to moderate the effect. Our quality assessment using the QSSP-Checklist revealed an acceptable median study quality. However, we observed great quality differences across studies and found a concerning lack of justification of methodological choices as, for example, the choice of scale and measurement method. Our literature review suggests no negative influence of UCO for the course of the COVID-19 pandemic.

Do people apply a precautionary heuristic when stating intentions to get vaccinated? — Mitchell Matthijssen

Mitchell Matthijssen, Florian van Leeuwen, Mariëlle Cloin, Ien van de Goor, Peter Achterberg

How do people make decisions about taking precautions for their health and what influences these decisions? We investigated whether people use a precautionary heuristic when stating intentions to get vaccinated. The precautionary heuristic is a decision-rule that suggests that if someone is subjected to a hazard, then taking an appropriate precaution reduces the harm. We addressed two limitations of previous research by explicitly modelling the "if-then" structure of the heuristic and testing how the heuristic relates to established predictors of vaccination intentions (i.e., individual differences in worldviews, such as religious orthodox beliefs).

We tested moderation and mediation models on a Dutch representative sample collected in 2021 (N = 2003) for five infectious diseases (e.g., COVID-19, measles). The analysis showed that respondents applied a precautionary heuristic for all diseases. Especially, testing the heuristic as an interaction increased the explained variance compared to traditional models that only included main effects of threat appraisal and coping appraisal. Furthermore, the effects of individual differences in worldviews and ideology were partially mediated by the heuristic. The current findings support the hypothesis that people make decisions about precautionary behaviors by applying a decision-rule that integrates estimates of hazard and efficacy.

The more the merrier? Utilizing asymmetrically dominated decoys to increase vaccine uptake — Lars Korn

Lars Korn, Robert Böhm, Ana Paula Santana, Cornelia Betsch

During the COVID-19 pandemic, individuals in high-income countries had the option to choose from different vaccines, some of which were perceived as less favorable. Research on the decoy effect suggests that the preference for an option (target) increases when a dominated option (decoy) is added. It is unknown whether the decoy effect occurs in vaccination decision-making. Two preregistered experiments—a vignette survey experiment (N = 1,268) and a behavioral experiment using an incentivized interactive vaccination game (N = 1,216)—therefore manipulated whether people were offered one vaccine (target) or two vaccines (target + decoy). Experiment 2 further tested four different types of decoys (decoy was i) a clone of the target; inferior regarding the ii) probability of side effects iii) severity of side effects iv) effectiveness of the vaccine). Both experiments showed the decoy effect, where the presence of an inferior vaccine increased the preference for the superior vaccine as well as overall vaccine uptake. It also decreased perceptions of the target's risk of side effects. In summary, the present research suggests that the availability of an inferior vaccine not necessarily increases vaccine hesitancy in general but could actually increase vaccine uptake and highlights sensible considerations in health communication programs.

Opt-out policy and its improvements promote COVID-19 vaccinations — Rui Zheng

Rui Zheng, Xin Liu

Vaccination uptake is a major strategy to prevent infection with SARS-CoV-2 and curb the transmission of COVID-19. However, many people remain unwilling to receive the COVID-19 vaccine. We conducted two studies to explore whether modifying the defaults could influence COVID-19 vaccination. In Study 1, we conducted a literature search and meta-analysis of 56 articles to systematically examine how effective opt-out policies are. In Study 2, We measured willingness to be vaccinated and attitude toward the policy after informing opt-in policy, standard opt-out policy, and its five improvements (opt-out education, opt-out opportunity, opt-out social norm, opt-out feedback, and opt-out opportunity). Risk perception of the pandemic of COVID-19 and vaccination were also measured. The results found that: (a) The meta-analysis revealed that opt-out policy nudging has a considerable effect; (b) opt-out policy and its improvements could increase intention and attitude to get vaccinated and (c) these default effects differ across diverse risk-perception groups. These findings provide new psychological evidence for formulating more targeted vaccination policies and highlight the importance of risk perception to understand vaccination intentions.

Confirmation bias and mitigating strategies in vaccine decision-making — Ploutarchos Kourtidis

Ploutarchos Kourtidis, Barbara Fasolo, Matteo M. Galizzi

Background: Vaccine hesitancy contributes to the (re)occurrence of vaccine-preventable diseases. One of the factors that affects vaccine hesitancy could be confirmation bias, the tendency to selectively seek or misinterpret information in favour of one's own beliefs.

Methods: In this research, we measure people's (N=1,641) attitudes towards a developing vaccine against Nipah, a "priority disease" with pandemic potential according to the WHO. We also test a pre-register hypothesis that people would exhibit confirmation bias when they process factual but ambiguous health information. Finally, we test to what extent confirmation bias and vaccination choice are sensitive to two corrective interventions: a debiasing technique that directs attention towards disconfirming information (considering-the-opposite), and a nudge that focuses on regret salience and social norms.

Results: We found that more than 30% of participants were hesitant towards a Nipah vaccine. Importantly, we found that both vaccine-willing and vaccine-hesitant participants processed health information similarly, but towards different directions, suggesting that confirmation bias is prevalent among both groups. Neither debiasing nor nudging significantly reduced bias, neither changed vaccination choice.

Conclusion: Confirmation bias is associated not only with vaccine hesitancy but also with vaccine willingness. Furthermore, public health information can be misinterpreted in favour of one's own vaccination belief.

Aversion towards New Technology Vaccines — Laura Zimmermann

Laura Zimmermann, Jeeva Somasundaram, Barsha Saha

We explore aversion towards new technology and ways to overcome this aversion with a simple nudge in the context of vaccine decision making. A plethora of research has shown that consumers are hesitant to receive a potentially life-saving vaccination. But are consumers more hesitant towards certain vaccines (i.e., those based on a new technology like mRNA) even if they are more effective? We present four studies (N_{total}=1461, and four supplementary studies, N=479) which test the propositions of a formal model that incorporates uncertainty, and other people's choices into the decision to vaccinate. We show that consumers are unduly averse towards new technology vaccines compared to traditional technology vaccines because of higher perceived uncertainty of side effects. However, there is considerable heterogeneity due to technology readiness and trust in government which we explore. To overcome new technology aversion, we test a simple nudge based on herd behavior. By communicating increasing population vaccination rates, we effectively increase uptake of new technology vaccines. Rather than being driven by conformity or social learning mechanisms, herd behavior information increases uptake of new technology vaccines by alleviating perceived uncertainty. This positive effect largely outweighs negative effects of free riding due to herd immunity considerations.

MISINFORMATION & POLARIZATION II

Alternative medicine, COVID conspiracies, and other health-related unfounded beliefs: The role of scientific literacy, analytical thinking and importance of rationality. — Viktória Sunyík

Viktória Sunyík, Vladimíra Čavojová

We examined the role of scientific literacy (scientific reasoning, scientific knowledge and trust in science) and other cognitive predictors (analytical thinking and importance of rationality) in susceptibility to health-related unfounded beliefs, which included belief in complementary and alternative medicine (CAM), Covid conspiracies, pseudoscientific and magical beliefs and cancer myths. A total of 1 308 participants (490 men) aged 18-80 years old ($M = 42.08$, $SD = 13.99$) participated in the study and correlational design was used. Results showed that belief in CAM was negatively predicted only by trust in science, while in case of others unfounded beliefs, all three components of scientific literacy had significant roles. Analytical thinking negatively predicted all unfounded beliefs and results suggest a more balanced contribution of scientific reasoning. Importance of rationality positively predicted belief in CAM as well other unfounded beliefs except Covid conspiracies. Our results are generally encouraging for the promotion of scientific literacy as a protective factor for susceptibility to unfounded beliefs.

Dispelling the fog of conspiracy: The potential of anti-conspiracy interventions to curb the salience of conspiracy explanations — Jakub Šrol

Jakub Šrol, Vladimíra Čavojová, Magdalena Adamus

The study experimentally investigated the effectiveness of an anti-conspiracy intervention on the tendency to interpret information in a conspiracy manner. Participants ($N = 672$) were randomly assigned to be exposed either to neutral, conspiracy or anti-conspiracy information about the vaccination against COVID-19. Afterwards, they responded to questions concerning whether they interpreted the presented information in a conspiracy manner and measures regarding normative and non-normative sociopolitical behaviour, trust in institutions and powerlessness. We also controlled for potential differences in Dark Tetrad personality traits, paranoia, conspiracy mentality, and psychological distress between experimental groups.

The exposure to anti-conspiracy content led to decreased endorsement of conspiracy explanations which were related to higher reported non-normative sociopolitical behavior and powerlessness, but lower trust in institutions. Interestingly, we found no difference in conspiracy explanations between neutral and conspiracy conditions. Therefore, when it comes to such a polarizing topic as COVID-19 vaccines, many people seem to understand even neutral events in a conspiracy manner. But importantly, an anti-conspiracy intervention showed a potential to decrease the willingness to explain events in a conspiratorial way even among individuals with high conspiracy mentality and thus might be beneficial in reducing powerlessness and the tendency to engage in non-normative sociopolitical behavior

The Empathetic Refutational Interview: An intervention targeting cognitive and affective motivations to believe vaccine misinformation — Dawn Holford

Dawn Holford, Philipp Schmid, Angelo Fasce, Stephan Lewandowsky

Effective corrections of misinformation need to go beyond simply refuting flaws in the misinformation and show an understanding of the cognitive and affective factors that motivate people to believe in it. In 4 experiments (total n = 2545), we examined the effectiveness of a novel, multi-step intervention that addressed these motivational factors by (1) eliciting individuals' concerns about vaccinations, (2) affirming an individuals' cognitive or affective motivations, and only then (3) refuting misinformed beliefs in manner that is tailored to the individual's motivations, and (4) presenting factual vaccination information.

We tested the intervention first as separate steps then altogether as a combined intervention, each time against active control conditions using a between-subjects design. We measured change in self-reported vaccine acceptance and endorsement of anti-vaccination arguments (reported at the start and end of each experiment), and participants' receptivity to a doctor's refutation presented during the intervention. Overall, a combination of affirmation, tailored refutation, and facts, helped increase vaccine acceptance while maintaining receptivity to the correction of misinformation. Partial interventions that included some elements of refutation and facts presentation were also more effective than the control at addressing misinformation and increasing vaccine acceptance, but were not as well-received as the full intervention.

The interface between political ideology and receptivity to pseudo-profound bullshit — Artur Nilsson

Artur Nilsson

Three studies mapped the relationship between political ideology and receptivity to pseudo-profound bullshit—that is, obscure sentences constructed to impress others rather than convey truth. The traditional bullshit receptivity scale was complemented with new measures of receptivity to financial, postmodern, corporate, and left- and right-wing bullshit (i.e., bullshit with ideological terms or jargon designed to sound appealing to respective political camp). Social conservatism, assessed in terms of binding moral intuitions, conservation values, and resistance to social change, was a very robust predictor of receptivity to all kinds of pseudo-profound bullshit except for left-wing bullshit. Progressive values, such as equality, protecting the environment, accepting immigrants, and pacifism, predicted receptivity exclusively to left-wing bullshit. Most of the results held up when we controlled for other robust predictors of bullshit receptivity, including high receptivity to genuine aphorisms and confirmation bias (neutral and political) and low cognitive reflection, numeracy, and education. Analyses at the level of party preference indicated that some groups of leftists were highly susceptible to bullshit. Taken together, the findings show evidence of both ideological asymmetries and symmetries in receptivity to pseudo-profound bullshit, while also documenting effects of many cognitive predictors.

Resolving content moderation dilemmas between free speech and harmful misinformation — Stefan M. Herzog

Anastasia Kozyreva, Stefan M. Herzog, Stephan Lewandowsky, Ralph Hertwig, Philipp Lorenz-Spreen, Mark Leiser, Jason Reifler

In online content moderation, two key values may come into conflict: protecting freedom of expression and preventing harm. Robust rules based in part on how citizens think about these moral dilemmas are necessary to deal with this conflict in a principled way, yet little is known about people's judgments and preferences around content moderation. We examined such moral dilemmas in a conjoint survey experiment where US respondents (N = 2,564) indicated whether they would remove problematic social media posts on election denial, anti-vaccination, Holocaust denial, and climate change denial and whether they would take punitive action against the accounts. Respondents were shown key information about the user and their post, as well as the consequences of the misinformation.

The majority preferred quashing harmful misinformation over protecting free speech. Respondents were more reluctant to suspend accounts than to remove posts, and more likely to do either if the harmful consequences of the misinformation were severe or if sharing it was a repeated offense. Features related to the account itself (the person behind the account, their partisanship, number of followers) had little to no effect on respondents' decisions. Our results can inform the design of transparent rules for content moderation of harmful misinformation.

Psychological interventions against susceptibility to fake news about COVID-19 — Beáta Sobotová

Beáta Sobotová, Jakub Šrol

From psychological research, we know mainly two potentially efficient interventions to reduce people's susceptibility to fake news and conspiracy theories – priming critical thinking and detailed inoculation. Our research aimed to verify the efficiency of these two interventions among the Slovak population. Participants (N = 352) were split into three groups, two experimental groups, one with the intervention priming critical thinking and the second with combined intervention, and one control group. We measured their ability to discern fake news about COVID – 19. Our results showed that neither one of the interventions was efficient in reducing people's susceptibility to fake news. However, our correlational results showed in line with previous findings, that reliance on fake news and conspiracy theories is strongly connected with a negative attitude toward vaccination and more conservative political leaning. The inefficiency of the interventions seems to have occurred mainly due to very low overall conspiracy belief among our sample, which highlights the need for further research on these interventions on a more representative sample of participants.

Improving health research literacy and decision making among females through a podcast-based intervention — Katie Byrd

Katie Byrd

Over the past few years, trust in mainstream news media has decreased and the phrase “Do your own research” has gained popularity especially regarding health and wellness among females. While doing your own health research is not inherently bad advice, and is even encouraged in certain settings, it can be problematic if the individual doing their own research does not understand what that means or how to do it accurately. With an individual's personal health decisions having the potential to affect not only their own health, but also the health of others (i.e., pandemics), we need to understand 1) what motivates females to do their own health research, 2) how do females currently do their own research and make decisions based on that research, and 3) can we improve research literacy and decision making abilities related to health and wellness among females through the use of podcasts. The three studies (N=1,035) in this paper seek to answer these questions by developing, evaluating, and disseminating a podcast-based intervention to improve an individual's ability to do their own health research.

The role of cognitive biases in conspiracy beliefs — Lorenzo Gagliardi

Lorenzo Gagliardi

In recent years, several studies have found that conspiracy believers tend to be more susceptible to cognitive biases (e.g., conjunction fallacy, proportionality bias, agency detection bias, etc.). The aim of this work is to review such literature, systematizing these concepts in a unifying framework of conspiracy mentality as a set of biased cognitive processes, which categorizes cognitive biases in two classes: those that contribute to belief formation and those that contribute to belief updating. Drawing on several empirical results, this paper summarizes the role of cognitive biases in conspiratorial thinking, offering some insights for future research and raising questions about the possible weaknesses of this approach.

The mediation role of institutional trust in the relation between precarity and the endorsement of conspiracy beliefs: a replication study from Slovakia — Eva Ballová Mikušková

Eva Ballová Mikušková, Magdalena Adamus

Recently, Adam-Troian et al. (2022) found that precarity is consistently associated with the endorsement of conspiracy beliefs. Specifically, the relationship between greater subjective appraisal of financial insecurity and enhanced endorsement of CTs is mediated by lower trust in governments and political elites. Using Financial Threat Scale (Marjanovic et al., 2015) adapted to COVID-related and war-related threats and a subjective socio-economic status (ladder task, Cantril, 1965) as proxies of precarity, we intended to replicate the findings. Institutional trust was measured as an average score of trust in eight institutions. Conspiracy beliefs were operationalised as general conspiracy mentality (Conspiracy Mentality Questionnaire, Bruder et al., 2013) and specific conspiracy beliefs concerning COVID-19 (C19-UB, Teličák & Halama, 2022). So far, we have data from two waves of a longitudinal study. In wave 2, we additionally used 8 Ukraine-related conspiracies (adapted from Šrol & Čavojová, n.d.). The results of both waves show congruence with the original Adam-Troian et al. (2022) findings regardless of the precarity operationalisation and the measure of the endorsement of conspiracy beliefs. We plan to extend the study by performing a preregistered replication on two further Slovak samples and ESS10 data. The preregistration form can be found at: <https://osf.io/afu97>.

RISKY CHOICES II

On the temporal stability of risk perception — Rui Mata

Rui Mata

Risk perception plays an essential role in decision making and a number of behavioral scientists have argued for the need to understand how people perceive and react to health and technological risks over time for the management of many societal problems. Specifically, the continued monitoring of risk perception can provide information about the acceptance and efficacy of public policy and risk-mitigation strategies. Despite the potential of risk perception monitoring, there is a lack of empirical work that quantifies the stability and change in risk perception and its main determinants. We report results of a scoping review summarizing existing knowledge in this domain and associated coordinated analysis of several serial cross-sectional data sets that contribute to characterizing the temporal stability of risk perception.

Choice blindness manipulation detection to gauge the stability of citizens' risk preferences?

— Lisa Scholten

Lisa Scholten

Understanding public preferences and support for policies with risky outcomes is challenging as interviewing of large samples is costly and computerized online formats often yield unstable results. To test whether manipulation detection in the choice blindness paradigm could be used to gauge risk preference stability given overlapping predictors reported in literature, I conducted a randomized controlled online experiment with 330 U.K. participants. Choice blindness manipulation (CBM) was applied alongside risk preference elicitation using two-outcome gambles about five outcome domains. Two experimental conditions distinguished between visually-supported and numeric-only stimuli while tracing the coincidence of task-, domain- and individual-level predictors. Risk preferences were moderately stable across elicitation trials. The majority of participants were choice blind, detecting only about 1 in 10 manipulations. CBM detection did not coincide with preference stability. Only 'distinctness of elicitation gambles' and 'risk numeracy' predicted both.

Moreover, the two experimental conditions split respondents almost perfectly into a risk-seeking (visually-supported) and risk-averse (numeric-only) group. Consequently, choice blindness detection does not allow to make inferences about risk preference stability. The results also defy the idea that valid, inherent preferences were obtained and question the use of gambles in choice experiments and preference elicitation to inform – and ultimately legitimize – public policy.

The Neglected Importance of Auxiliary Assumptions when Applying Probability Theory – Joakim Sundh

Joakim Sundh

Although probability theory defines how probability measures are expressed and used, it is agnostic to where these measures come from. To apply probability theory, one must therefore make a number of auxiliary assumptions regarding assignment and interpretation of probability. In this talk I demonstrate that these assumptions can lead to radically different conclusions that are nevertheless mathematically and philosophically coherent. I further argue that cognitive research, as a rule, does not take these assumptions into consideration, but rather conflates the conceptual interpretation of probability with its mathematical application. This creates the implicit assumption that there is one, and only one, way of correctly applying probability theory to any given situation, when in reality probability theory can usually be applied in a number of different ways, all equally correct from both a mathematical and a philosophical perspective. In order for cognitive science to progress, these auxiliary assumptions must be taken into consideration, as well as be the subject of research in their own right.

Not by Choices Alone: Evaluating Strength of Preference Judgments – John McCoy

John McCoy

Much of the study of decision making is concerned with uncovering people's preferences, yet we seldom ask people directly for the strength of their preferences, as opposed to simply asking people for their choices. I elicit from participants their choices and strength of preference judgments for pairs of gambles, as well as attractiveness ratings, and willingness to pay judgments for each gamble independently, and develop a Bayesian model of strength of preference judgments. I show that such strength of preferences judgments can be incentivized, are systematic across individuals, enable more accurate predictions of out-of-sample choices, and track preference reversals. I compare strength of preference judgments to confidence judgments.

Order effects in preference elicitations — Orestis Kopsacheilis

Orestis Kopsacheilis, Sebastian Goerg

Methods that have been developed can be broadly distinguished between methods that rely on subjects directly stating their preferences (self-reports) or indirectly inferring those preferences through choices (behavioral measures). In this paper we ask if researchers should be concerned with potential 'order effects' when choosing to elicit preferences through both methods. We conduct three, pre-registered, studies where we elicit preferences about risk, time-discounting and altruism in variations of two conditions: 'Behavioral Measures First' and 'Self-Reports First'. Echoing past literature, we find that inferred preferences differ significantly across the two methods with people in stated preferences appearing to be on average more risk tolerant, patient and altruistic compared to revealed preference measures. Importantly, we find significant and systematic order effects. Eliciting Self-Reports first boosts inferred risk tolerance, patience and altruism while eliciting Behavioral Measures first increases consistency across methods. We explore how monetary incentivisation and introducing financial context modulates these results and discuss the implications of our findings in the context of nudging interventions as well as our understanding of the nature of preferences.

Culture, personality and situation perspectives: How extroversion, neuroticism, conscientiousness personality traits and individualism-collectivism associated with risky decisions during COVID-19 pandemic — Keshun Zhang

Yichen Guan, Wanjun Cao, Keshun Zhang

In the gain framing condition, extroversion and conscientiousness have a positive main effect on risk-seeking, while neuroticism has a negative main effect on decision-making. However, in the loss framing condition, extroversion has a positive main effect on risk-seeking, while conscientiousness has a negative main effect on decision-making. Additionally, the interaction coefficient for the moderating effect of the individualism-collectivism dimension on the relationship between conscientiousness and risk-seeking is significant. With the framing condition of gain, the main effect of conscientiousness is positive, and the interaction effect is the same positive, which means that the total effect is increasing in the individualism-collectivism index. However, with the framing condition of loss, the main effect of conscientiousness is negative, but the interaction effect is positive, which means that the total effect is decreasing in the individualism-collectivism index. We provide theory explanations for cross-cultural variations in personality relationships with decision-making.

Intuitive vs. Analytical Leaders: Consequences for Risk Seeking When Deciding for Others — Lewend Mayiwar

Lewend Mayiwar, Linda Lai

We conducted four preregistered experiments examining the impact of social distance on risk seeking among employees and leaders in Norway across various sectors ($N_{\text{total}} = 1,137$). In each experiment, we presented participants with a decision problem modeled on the classic disease problem in both the gain frame and loss frame. We modified the context in each problem to increase their relevance for participants (e.g., financial decision-making scenario in the experiment that recruited participants working in finance). Other than these slight modifications, the four experiments were identical. We thus combined them to increase power. Exploratory analyses indicated that the impact of social distance on risk taking varied between leaders and non-leaders. Deciding for others (vs. the self) reduced risk seeking among non-leaders (vs. leaders). This effect also depended on how participants processed information. Among leaders, relying on intuition led to a decrease in risk seeking when deciding for others, whereas relying on analysis led to a slight but insignificant increase in risk seeking. The overall pattern of results was in the opposite direction among non-leaders. These results hint at a possible reputation heuristic, signaling that leaders should avoid risk when deciding for others.

Contextual effect in subjective and objective measures of preferences across decision-making modalities — Magdalena Soukupova

Magdalena Soukupova, Stefano Palminteri

We investigated if context influences how values are learned and retrieved from memory. Our experiment consisted of a learning phase, where participants encountered 8 different options presented in stable fixed contexts, followed by two post-learning memory tests, where participants had to either recall the option outcomes or select the best option of a given pair. Participants' responses in those tests represented a mix of the option's global rank (how good it was compared to all other options in the task) and its local rank (how good it was compared to its pairmate from the learning task). To understand this pattern better, we ran further experiments where we varied learning architecture (i.e. which options were presented together during the learning) and learning modality (i.e. learning from experience vs learning from description).

We found that participants' responses were robust to changes in learning modality but sensitive to changes in learning architecture and thus demonstrated that the observed pattern of responses systematically arises from learning architectures that favour contextual learning rather than any innate properties of the options themselves, and that these deviations from normality cannot be reduced by increasing the amount of information given or by reducing the inference requirements.

WILLFUL IGNORANCE

Willful Ignorance of the Needy: The Surprising Role of Entitlement — Ilana Ritov

Ilana Ritov, Stephen M. Garcia

While past research has shown that people often intentionally avoid information regarding the consequences of their decisions on affected others, the present research explores how pursuing information about others positively affects helping behavior. We hypothesize that those who pursue versus avoid information will be more likely to help a person in need. We also posit that feelings of entitlement affect the willingness to pursue information about people in need. That is, we hypothesize that people who are high in entitlement will be more likely to pursue additional information about people in need. Studies 1, 2, and 3 offer support for these hypotheses, across hypothetical and monetary-based outcomes and across self-reported and experimentally manipulated levels of entitlement.

When Ignorance is a Curse: Being Blind to Irrelevant Information Compromises Selection Decisions — Hagai Rabinovitch

Hagai Rabinovitch, Yoella Bereby-Meyer

Sustainable investments are characterized by considerations about financial returns as well as environmental impact. We investigate how information on both aspects alone and in combination impacts the decision to invest sustainably. Moreover, we test whether letting investors express their sustainability preferences in a more detailed way affects their investment decisions. We run an incentivized online experiment with experienced retail investors and a representative sample of the Austrian population (N = 2,254 in total).

We find that information on financial returns and information on environmental impact both stimulate sustainable investments. However, presenting the two types of information in combination yields no greater effect than presenting one of them alone. Furthermore, we find no evidence that investment decisions are affected by whether sustainability preferences are elicited generally or in a more detailed format. Results also show that sustainable investments are positively correlated with investors' biospheric values and their financial literacy.

With knowledge and vividness, it is possible to improve climate change behavioral intentions. — Yael Mintz

Yael Mintz, Tehila Kogut, Yoella Bereby-Meyer

Climate change threat has significant implications for billions of people worldwide, yet individuals and organizations tend to deny it. The current study investigates the relationship between the tendency to be deliberately ignorant and the vividness of the consequences of climate change, on the intention to mitigate the threat. Participants (N=138) completed in Time 1 questionnaires measuring behavioral intentions towards climate change, tendency for passive risk-taking behavior, cognitive style, and the tendency to deliberately ignore information. In Time 2, participants were presented with four examples of climate change consequences (e.g., glaciers melting in Iceland) and were randomly assigned to either a condition with headlines only or with headlines and a relevant photo (vivid condition). We found that those who tend to take passive risks, to deliberately ignore information and to have an intuitive thinking style, have a weaker behavioral intention towards mitigating climate change initially. However, these intentions were improved by making the consequences of climate change more vivid, but only for those with weaker initial intentions. These findings highlight the importance of reducing ignorance and increasing awareness about the consequences of climate change to improve mitigation behavior.

Ethical information-seeking and avoidance in consumer choice — Dianna Amasino

Dianna Amasino, Suzanne Oosterwijk, Nicolette Sullivan, Joël van der Weele

There is evidence that consumers underutilize ethical information (e.g., labor conditions; environmental impact) in their purchases compared to their surveyed intentions. Across two studies, we investigate whether consumers use ethical information when confronted with it but avoid such information when possible because it is unpleasant to contemplate. In study 1, we find evidence for diminished impact of labor practices, relative to other attributes, when it is possible to avoid. In study 2, we further investigate how positive and negative framing of ethical information influences choice. We find that both positive and negative frames increase ethical information-seeking and the impact of ethical information in choice relative to neutral frames regardless of whether information is avoidable. Further, negative frames have a stronger effect than positive frames in increasing the proportion of ethical choices, indicating no evidence of a backfiring effect whereby negative framing could increase avoidance. Together, this suggests that there is a small effect of information being avoidable enabling fewer ethical choices, but that negative framing increases ethical consumer choices regardless of the avoidability of information.

Uncovering the Connection between Resource Scarcity and Ethical Decision-Making: Insights from Eye-Tracking — Caroline Kjær Børsting

Caroline Kjær Børsting, Christian Elbæk, Panagiotis Mitkidis, Guy Hochman

Current research provides conflicting evidence on whether resource scarcity leads to more unethical behavior. It seems that engagement in unethical behavior depends more on the subjective experience of others having more resources than oneself, rather than on one's social class, and that such perceived unfairness can serve as a justification for unethical behavior. Research also suggests that people often seek to justify unethical behaviors to escape inner ethical dissonance, which can lead to redefining moral boundaries. One such justification is avoiding confrontation with proof of one's unethicity, which makes it easier to behave unethically. Here, we ask the question of whether resource scarcity affects individuals' avoidance of information about their unethical behavior. We test this in the lab using eye-tracking. Results show that participants in scarcity are more likely to attend to self-serving but unethical information, even though they ultimately behave less unethically. They are also less likely to use diagnostic information that indicates the correct response regardless of whether they are incentivized to be accurate or to make self-serving errors. Our findings could inform the development of interventions to help individuals make more ethical and sustainable decisions, and thereby promote social and economic justice.

Giving (in) to help an identified person — Linh Vu

Linh Vu, Catherine Molho, Ivan Soraperra, Susann Fiedler, Shaul Shalvi

People often give more to a person in need when the person is identified. Such altruistic behaviors may arise from a genuine concern for the person, leading people to give. Alternatively, altruistic behaviors may arise from one's attempt to reduce the guilt of not giving, leading people to give in. Is the increased altruism toward an identified (vs. unidentified) beneficiary driven by a genuine concern for the person or by guilt? The current registered report proposes an experiment in which participants make a choice between two options that determine the payoffs for themselves and for a child in need. In a 2 (identified vs. unidentified child) × 2 (clear vs. ambiguous consequences) between-subjects design, we test the hypothesis that when provided with full information about the consequences of their choice for the child, participants will give more to an identified (vs. unidentified) child. However, when participants must find out how their choice will impact the child, we hypothesize the positive effect of identification will be attenuated. We expect this is due to higher anticipated guilt triggered by identifying information, leading participants to avoid information and act less altruistically. Pilot data provide initial support for our hypotheses. Results are pending.

Is (Price) Ignorance Bliss? Consumer Misprediction of Sampling Enjoyment — Siyuan Yin

Siyuan Yin, Grant E. Donnelly, Cait Lamberton, Michael I. Norton

Prior research suggests that experiences motivate consumers to prioritize the present, such that they are more likely to take on debt and show impatience for their sake than they are for material goods. The current research investigates whether this dominance of experiences over goods extends to savings, which requires people to imagine that future and make plans to achieve their goals? If so, why? Across one field study (N = 93,577) and seven experiments (N = 6,363; six preregistered), consumers report higher saving intentions for experiences (vs. material goods across contexts of initiating saving goals, saving for self-generated goals, tradeoffs between larger, better and smaller, worse saving goals, and protecting savings by drawing less for emergency expenses. Evidence suggests that this effect may be driven by the fact that experiences (vs. goods) more readily activate imagination, prompting the activation of an implementation mindset, which in turn motivates savings. Supporting this account, moderation studies reveal that consumers can be more motivated to save for material goods when they are encouraged to engage in an implementation mindset, or equally likely to save for experiential and material goods when they have difficulty imagining their saving goals due to unfamiliarity.

Spoiling the party. An experiment on transmission of inconvenient information. — Ivan Soraperra

Jantsje M. Mol, Ivan Soraperra, and Joël J. van der Weele

Many people would rather not tell others that their decisions can negatively affect a third party, for example by highlighting the environmental impact of meat consumption or the moral duty of getting vaccinated. This paper examines the decision to interfere with other peoples' decisions by sharing or hiding inconvenient information. We use a simple online experiment to explore the importance of different motives in the decision to share or not inconvenient information: (i) own paternalistic preferences about sharing information, (ii) the desire to follow the preferences of others about obtaining information, (iii) the strategic motive to avoid punishment.

Our results find little support that the decision to share information is sensitive to knowing the receiver's preferences about getting informed, suggesting that the motive to share information is a paternalistic one rather than the desire to help the receiver. Moreover, the decision to share information is not influenced by the introduction of the risk to be punished by the receiver when not following his/her request. This strengthens the idea that senders' preferences to share inconvenient information have a strong paternalistic motive, with senders even willing to incur a cost in order to follow their preference for sharing information.

HEURISTICS & BIASES II

The influence of information seeking on vaccination decisions — Marina Groß

Marina Groß, Robert Böhm, Cornelia Betsch, Lars Korn, Ana Santana, Elisabeth Sievert, Maxine Pepper

Most interventions aiming at changing vaccination behavior treat decision makers as passive receivers of information. In contrast, evidence shows that active engagement with information has a greater effect on vaccination intention. We explore how decision makers actively seek for information when faced with a vaccination decision. We developed a new paradigm to directly observe and quantitatively measure participants' seeking behavior in an online format: Participants faced with a fictitious vaccination decision could freely browse through an information catalogue that integrated the instructions for an interactive and incentivized vaccination game. Seeking behavior was measured by time spent searching and the amount of information looked at.

In a pre-registered online study (N = 381), we tested the paradigm, while assessing perceived knowledge and attitudes towards vaccination and information seeking. We found that information seeking increased knowledge: The more participants searched, the higher was their perceived knowledge afterwards. In addition, we found that participants who decided against vaccination had significantly worse attitudes toward information seeking.

The results show that information seeking can function as a valuable tool before a vaccination decision. As a next step, the newly-developed paradigm can be used to test interventions that motivate decision makers to search for information.

Interchangeability of Cue and Outcome Density effects — Sahana Shankar

Sahana Shankar, Tim Rakow, Nicola Byrom, Wijnand van Tilburg

Studies of cue-outcome contingency learning demonstrate outcome density effects. Participants tend to overestimate contingencies when outcome densities are high. Equivalent cue density effects have been observed, though have been examined less frequently and, moreover, few studies have simultaneously examined cue density and outcome density effects, limiting our knowledge of whether these phenomena share underlying principles or are qualitatively different.

In Experiment 1 we compared the magnitude of cue density and outcome density effects, manipulating density. Experiment 2a manipulated order of cue and outcome presentation with a manipulation of outcome density, whilst experiment 2b manipulated order of cue and outcome presentation with a manipulation of cue density.

Experiment 1 found a large significant main effect of density which was qualified by a significant interaction between event presentation order and density level whereby the outcome density effect was larger than the cue density effect. Experiments 2a and 2b found significant effects of outcome density and cue density, respectively. Neither experiment found significant main effects of event presentation order.

We conclude that the outcome density effect is robust, whilst the cue density effect is less so. Event presentation order makes little or no difference to the magnitude of density effects.

Measuring decision-making styles by different instruments - common features and age differences — Jozef Bavolar

Jozef Bavolar

Decision-making styles are learned habitual patterns exhibited by an individual when confronted with a decision situation (Scott & Bruce, 1995). The preferences of individuals have mainly been measured by self-reported inventories based on different theoretical assumptions using a limited number of often-used measures with their mutual overlap. The study explores the similarities and differences of the two mostly used instruments – The General Decision Making Style (Scott & Bruce, 1995) and Melbourne Decision Making Questionnaire (Mann et al., 1997) as well as the age differences in styles in a sample of 382 participants aged 18-76 years old. The rational GDMS style was found to be positively related to vigilance (MDMQ) and negatively to the three remaining MDMQ styles. The three non-adaptive MDMQ styles were found to be positively related to the dependent, spontaneous and particularly avoidant GDMS style. An exploratory factor analysis identified three factors – rational (rational style in GDMS and vigilance in MDMQ), intuitive (intuitive and spontaneous in GDMS) and avoidant – the avoidant and dependent in the GDMS and hypervigilance, procrastination and buck-passing in the MDMQ. The differences according to age indicate an increase in the intuitive style with increasing age and the lowest use of decision avoidance in middle age.

I don't want to feel good, before I solve my problems; how emotional motives underly situation choice, through perceived utility. — Jurriaan te Koppele

Jurriaan Tekoppele, Ilona E. de Hooge, Hans C. M. van Trijp

While decision-makers choose situations daily, it remains unclear how they seek out situations when experiencing emotions. In this study, we investigated the motives and perceived utility that underly this process. In a series of experiments, we compared the importance of motives for pleasure, goal-achievement and approach-avoidance of emotion-eliciting targets using multi-attribute utility theory. In a first experiment on guilt (vs. a control condition), participants chose from and rated situations according to features that represented these three motives. Participants in the guilt condition mostly chose situations according to goal-achievement, followed by approach-avoidance motives. They avoided pleasurable situations that did not allow for goal-achievement. This pattern was explained through perceived utility of these situations, suggesting that when experiencing guilt, decision-makers' situation choices are guided by goal-achievement to resolve the issue with the person they feel guilty towards, rather than by seeking pleasure. These findings go against established theories that decision-makers generally make choices based on aims to experience pleasure. This experiment and subsequent experiments demonstrated how emotions (e.g. guilt) can influence situation choice, and outline the importance of multiple motives and perceived utility in this process, thereby providing new insights into the role of emotions in decision-making.

Recurring Suboptimal Choices Result in Superior Decision Making — Supratik Mondal

Supratik Mondal, Dominik Lenda, Jakub Traczyk

A vast literature on statistical numeracy indicates that highly numerate individuals, in comparison to less numerate individuals, make superior decisions by employing more deliberative processes characterized by selecting the option with the highest Expected Value (EV). However, it is not feasible to deliberate every time we make a choice due to cognitive and environmental constraints. We hypothesized that highly numerate individuals, under time constraints, will be able to abandon their deliberative EV maximization strategy to make faster and less accurate choices to increase overall earnings. We tested this hypothesis in one simulation and three well-powered, fully-incentivized empirical studies using the decision-from-experience paradigm.

The simulation study demonstrated that under time constraints, more suboptimal choices could lead to a better overall performance in a decision task, given that normative decisions are slower than quick suboptimal choices. In Study 1, we found that individuals who maximized EV without time constraints accumulated higher total gain. However, the trend reversed after introducing time constraints in the following two studies. To summarize, we demonstrated that making quick suboptimal choices resulted in better overall earnings (Studies 2 & 3) and that highly numerate individuals made significant adjustments to their decision process leading to better overall performance.

Cognitive Price of Cheap Processing — Kaja Damjanovic

Kaja Damjanović, Sandra Ilić, Milica Damjanović

The intuitive and deliberate thinking differ in cognitive load, which can affect the subsequent cognitive process. Our study aimed to test if the heuristic reasoning is cognitively cheaper and that the content retrieval would be weaker after the heuristic reasoning. We combined reasoning tasks with a lexical access paradigm forming a sequence of cognitive processing. The first task in each sequence was from cognitive reflection test (altogether 16 conflict and non-conflict tasks). The second was the lexical decision task, administered immediately after and consisted of 24 medium frequency range nouns: (1) identical to the words in CRT, semantically (2) related, (3) unrelated to them, and (4) pseudo-words (12). Three-way ANOVA revealed the main effect of the word category ($F(2, 81) = 4.247, p = .016, \eta^2 = .06$), with insignificant interactions. RT for the same words was the shortest, followed by related and unrelated, due to the priming effects. Preceded by the correct answers, the same and the related words were recognized faster than after the heuristic answers. The resourceful processing of the content boosts the content retrieval in subsequent processing. Cognitive load spent in (costly) Type 2 is the cognitive investment too, and not just the price paid.

When do logical intuitions give outputs? — Sandra Ilic

Sandra Ilić, Ksenija Mišić, Kaja Damjanović

Hybrid models of reasoning posit that in the initial stages of reasoning multiple intuitive processes are activated, and propose the concept of logical intuitions that are based on highly automatized mindware, that is – knowledge about mathematical, logical, and probabilistic principles acquired to the level of automatization. The aim of the present study was to investigate when logical intuitions give outputs by imposing strict time limits for reasoning, and by using the known correlates of logical intuitions. To this end, we employed the two-response paradigm which allowed for delineating intuitive from deliberative answers on cognitive reflection test (CRT), randomly split the sample in six groups that had 250ms to 1500ms for intuitive solving of each CRT task, and registered participants' intelligence, mindware, mindware automatization, and executive functions. We hypothesized that if logical intuitions consistently occur at a given time during reasoning, intuitive accuracy on CRT could be predicted by known correlates in only one timeframe. The preliminary data and results indicate that logical intuitions activate sometime between 750 and 1000ms after participants have read the task, as the accuracy on CRT is significantly predicted by mindware automatization only in this timeframe.

Pseudocontingencies in the Wild: Exploring Contingency Inferences from Base Rates Outside the Experimental Setting — Niklas Pivecka

Niklas Pivecka, Sonja Kunz, Arnd Florack

Pseudocontingencies describe the reliance on base rate information to infer contingencies despite its potential to deviate dramatically from the actual contingency. This phenomenon has been extensively studied in experimental settings, but little is known about its occurrence in real-world contexts. The present research explores how people infer the contingency between food healthiness and tastiness (the unhealthy=tasty belief) using menu descriptions of dishes from two restaurant types: American and Vegetarian restaurants. Participants rated health and taste of 12 dishes from each context and estimated the health and taste base rates for each context. We then measured the perceived unhealthy=tasty belief for each context. Results showed no correlation between health and taste ratings in both contexts but misaligned base rates in the American restaurants (healthy rare but tasty prevalent) and aligned base rates (healthy and tasty prevalent) in the Vegetarian restaurants.

Participants' unhealthy=tasty beliefs were stronger for the American restaurants, and the alignment of base rates predicted the perceived unhealthy=tasty belief even when controlling for the actual health-taste correlation and the context. Thus, our study demonstrates that skewed base rates of real-world food contexts can result in contingency inferences that deviate from the actual contingency.

Is COVID-19 Vaccine Hesitancy Related to Probability Neglect? A Process-Tracing and Computational Modeling Analysis — Kamil Fulawka

Kamil Fulawka, Ralph Hertwig, Thorsten Pachur

Results from large-scale surveys indicate that concerns about side effects and benefits are major reasons for vaccine refusal. However, the cognitive mechanisms behind this phenomenon are not yet fully understood. This study aims to examine the relationship between vaccine refusal and probability neglect, that is, the tendency to ignore the probabilities of highly aversive outcomes like extreme side effects. In a process-tracing online study, we contrasted the behavior of three participant groups with different COVID-19 vaccination attitudes: Anti-vaccine (n = 365), Neutral (n = 373), or Pro-vaccine (n = 462). Participants made hypothetical accept-reject choices about eight existing COVID-19 vaccines, and the information search process was monitored using Mouselab. The results showed that in the Neutral and Pro-vaccine groups, vaccine rejection was higher in trials with side effects' probability neglect, but only for vaccines with rare, extreme side effects. Results from computational modeling indicated that vaccine rejection in the Anti-vaccine group is linked to negative emotional evaluations of the side effects and overall neglect of probabilities, that is, even after inspecting them prior to making the choice. These findings suggest that individualized and vaccine-specific interventions could help increase vaccination uptake and address vaccine hesitancy.

Stable Individual Differences in Overconfidence — M. Asher Lawson

M. Asher Lawson, Richard P. Larrick, Jack B. Soll

Overconfidence has primarily been studied in one of three forms; overestimation, overplacement, or overprecision. These forms differ in their definitions, the levels of overconfidence they exhibit, and their responses to changes to task difficulty. This has led some to conclude that the different measurements of overconfidence do not share a common, dispositional component, but rather are empirically distinct. In four studies, we show that at an individual-level, i) different elicitations of overconfidence are positively correlated, and ii) measures of overconfidence are stable over short and long time periods. We conclude from this evidence that there is a dispositional component to overconfident beliefs and that the three forms are empirically related. We also introduce a new measure of overconfidence that is less dependent on the idiosyncrasies of individual elicitations: core overconfidence. We find that core overconfidence is significantly associated with a range of individual difference measures (e.g., narcissism), and can be measured efficiently using a short three-item scale (the Overconfidence Test (OCT)). Overall, by studying the same respondents' behaviors across elicitations, domains, and time periods, we find strong evidence for stable, individual differences in overconfidence.

INTERTEMPORAL CHOICES I

Mental accounting of time: An investigation of time as a resource — Maria Rosa Miccoli

Maria Rosa Miccoli, Malena Miller, Ulf-Dietrich Reips

Understanding which cues and strategies people use to value their time is a topic of great value. Investigating which variables are involved in people's time evaluation would help understand individual decisions and preferences in different contexts (e.g., work time structures, work-life balance, etc.).

This project aims to understand whether social norms, temporality of the loss, and context type impact decisions involving time as a resource. The mental accounting framework was chosen to accomplish this goal because time, similarly to money, has a measurable, objective value and a perceived, subjective value. Creating a mental account impacts people's decision-making processes.

Three online experiments adapting Tversky and Kahneman's classical paradigm of the theater ticket experiment to temporal resources were conducted to explore whether mental accounting of time follows similar rules as mental accounting of money.

The results suggest that a mental accounting of the time effect exists and that variables (social norms, temporality of the loss, context type) characterizing the perceived value of time play an important role in this effect. The findings offer an advancement in research on the human perception of time as a resource. We will discuss results, insights and possible future research in decision-making processes involving time.

Time neglect: Consumers overlook time and overemphasize accumulative index of quality –
Jingyi Lu

Jingyi Lu, Tian Qiu

As time causes a natural increase in accumulative index (e.g., the total number of likes received for a video), early- (vs. late-) launched options usually enjoy a higher accumulative index (e.g., early-released videos often received more likes in total). A rational decision maker should consider not only the accumulative index, but also time and the average index of quality (e.g., the average number of likes per year). However, across five studies, the current research documents a counter-normative preference that consumers prefer early-launched options with higher accumulative index but lower average index (vs. late-launched options with lower accumulative index but higher average index). This preference is caused by time neglect (i.e., insensitivity to time information). Simply prompting consumers to consider time (e.g., “given the release time, which video is more popular?”) can reduce this bias. Preference for early-launched options is reversed when negative indexes (e.g., dislike) increase with time. Our research contributes to the literature on information neglect by identifying time neglect. Practically, it encourages marketers promoting new products to emphasize products' launch time.

In Which Environments is Impulsive Behavior Adaptive? A Cross-Discipline Review and Integration of Formal Models — Jesse Fenneman

Jesse Fenneman

Are impulsive behaviors an adaptive response to living in harsh or unpredictable environments? Formal models help address this question by providing cost-benefit analyses across a broad range of environmental conditions, but their various results have not been systematically integrated. Here we survey models from diverse disciplines including psychology, biology, economics, and management to develop a conceptual framework. Using this framework, we integrated results from 30 models to understand whether impulsivity is adaptive across a range of environmental conditions. We focus on information impulsivity, that is, acting without considering consequences, and temporal impulsivity, that is, the tendency to pick sooner outcomes over later ones. Results show that both types are adaptive when individuals are close to a critical threshold (e.g., bankruptcy), resources are predictable, or interruptions are common. When resources are scarce, impulsivity can be adaptive or maladaptive, depending on the type and degree of scarcity. Information impulsivity is also adaptive when environments do not change over time or change very often (but maladaptive in-between). Temporal impulsivity is adaptive when environments do not change over time. Our review connects disciplines, affords modelers to see similarities and differences between their own models and those of others, and provides explicit empirical predictions.

Pavlovian impatience: Anticipating immediate rewards increases instrumental go-responding compared to preference-matched delayed rewards — Floor Burghoorn

Floor Burghoorn, Anouk Scheres, John Monterosso, Mingqian Guo, Shan Luo, Karin Roelofs, Bernd Figner

People often exhibit intertemporal impatience by choosing sooner-smaller rewards over later-larger rewards. This tendency has been found to be particularly strong when the sooner-smaller reward is available immediately, known as present-bias. In this preregistered study, we investigated the role of Pavlovian biases as psychological mechanism contributing to this intertemporal impatience. We hypothesized that the anticipation of immediate rewards (compared to preference-matched delayed rewards), elicited by cues that signal their availability, enhances goal-directed approach behaviour, but interferes with goal-directed inhibition.

This could explain why we often find it difficult to inhibit ourselves in the face of immediate rewards (e.g., a snack), conflicting with our long-term (health) goals. To test our hypothesis, we developed a novel reinforcement learning go/no-go task with four trial types: go-to-win-immediate reward, go-to-win-delayed reward, no-go-to-win-immediate reward, and no-go-to-win-delayed reward trials. Data from 184 participants showed that, as hypothesized, go-responding was increased in trials in which an immediate reward (versus a preference-matched delayed reward) was available. These findings support the proposed role of Pavlovian biases as mechanism contributing to impatient intertemporal choice. Such mechanistic insight promises to advance our understanding of impatient decisions, and the processes through which they are implicated across maladaptive behaviours and psychopathology.

Individual difference in time-ambiguity intertemporal choice and risky-ambiguity choice —
Mingqian Guo

Mingqian Guo, Iris Ikkink, Karin Roelofs, Bernd Figner

Intertemporal choices have been widely studied in psychological and behavioral economics research. Most intertemporal choice studies only study decision with exactly known reward delivery times. In contrast, in the real world, we usually have only a rough knowledge of the delivery time. A recent study (Ikkink et al., 2019) started to investigate the role of time-ambiguity in ITC. The current study uses a large dataset ($N > 669$) to (i) examine the relationship between probability-ambiguity and time-ambiguity, and (ii) identify best-fitting computational models capturing these decisions. Using GLMM + ROPE analyses, we identified that people who are more time-ambiguity averse also are also more probability-ambiguity averse. Computational analysis using a drift-diffusion framework indicated time-ambiguity aversion was best captured by an attribute-wise model whereas probability-ambiguity aversion was best captured by the commonly used Gilboa-Schmeidler expected-utility model. Further, reduced non-decision times were found in ambiguous (compared to exact) trials in both domains. Together, these results reveal similarities in ambiguity-preferences across domains despite domain-specific decision strategies.

Why do people pay not to go to the gym? — Andrea Isoni

Andrea Isoni

Virtue goods are characterised by unpleasant consumption and long-term benefits. Some argue they pose self-control problems that consumers try to overcome by buying them on 'membership' rather than 'pay-as-you-go' contracts. We contrast this self-control hypothesis with two alternatives: the prediction error hypothesis that individuals overpredict their future consumption of virtue goods and choose membership contracts believing they will be the cheapest for them; and the pain of paying hypothesis that people prefer to consolidate several small payments into one larger one, and/or prefer to pay in advance. In the experiment, the virtue good is studying for an exam, with gaming entertainment as a tempting alternative. We test the above hypotheses by eliciting participants' rankings of various membership and pay-as-you-go contracts and observing their subsequent consumption decisions. We find little support for the self-control and pain of paying hypotheses. Our results indicate that the excessive purchase of virtue goods is most likely caused by the overprediction of future consumption.

Uncertainty Attitudes and Poverty — Victor Gonzalez-Jimenez

Victor Gonzalez-Jimenez

This paper shows that biases inherent to decision-making under uncertainty can reinforce poverty. Our theoretical model shows that probability distortions and ambiguity attitudes prevent individuals from accurately evaluating the effectiveness of investments, leading them to forgo profitable opportunities. Because the marginal return to investments is larger for the poor, passing on these investments entails more severe consequences; their poverty is perpetuated even though chances to overcome that initial condition were available. Our study highlights the role of established biases of decision-making under uncertainty in generating poverty traps.

SCARCITY & COGNITIVE RESTRICTIONS

Time Pressure in Multi-Attribute Inferences Affects Response Precision but Not Cognitive Processes — Florian I. Seitz

Florian I. Seitz, Bettina von Helversen, Rebecca Albrecht, Jörg Rieskamp, Jana B. Jarecki

This work compares three mechanisms to cope with time pressure in similarity-based inferences from multiple features. Specifically, we test whether time pressure causes people to attend to fewer object features, respond less precisely, or simplify the computation of psychological similarity. This simplified similarity considers the number of matching features, but ignores the precise feature value differences. We conducted two preregistered time pressure studies (Ns = 61 and 175, respectively), in which people categorized objects with three multi-valued features or judged their similarity. Inferential statistics and computational cognitive modeling in an exemplar-similarity framework showed that the responses of most participants with time pressure, particularly their similarity judgments, are in line with less precise responding. The variability of participants' behavior increases with time pressure, to a point where participants are unlikely to make inferences anymore but instead begin to repeatedly choose readily available response options. In contrast, we find no evidence that participants attend to fewer features or simplify the similarity computation. These results extend the evidence that time pressure and other cognitive load do not necessarily alter cognitive processes themselves but rather decrease the precision with which responses are selected—in particular for objects with multiple relevant and salient features.

How Does Cognitive Load Affect Judgment and Decision Making? A Meta-Analysis — Janina A. Hoffmann

Janina A. Hoffmann, Sarah-Sophie Siemsglöß, Thorsten Pachur, Bettina von Helversen

Decision researchers have often invoked cognitive limitations to explain why human decision-making systematically deviates from rationality. Although many studies have found that cognitive limitations predominantly harm decision performance, the evidence is scattered across the literature. Further, sometimes limitations even seem to benefit decision performance, suggesting that the type of constraint may interact with characteristics of the decision task. Here we conduct a meta-analysis to synthesize evidence on how cognitive load impacts decision-making.

We focus on studies in which people solve decision-making problems while simultaneously performing a secondary task. Our literature search identified 57 matching articles, comprising 205 single effect sizes and 95 effect sizes with decision accuracy as the outcome criterion. A three-level meta-analytic hierarchical model estimated that cognitive load was associated with lower decision accuracy to a small to moderate degree, $d = -.34$, 95%-CI = $[-0.43; -0.26]$. This effect on accuracy was moderated by the type of the decision task. But more complex problems were not impacted more by cognitive load than simpler ones. Studies rarely vary the cognitive load or the material, so conclusions about how different constraints may interact with distinct decision problems or strategies are limited.

Precarious conditions may prompt people to endorse conspiracy theories and make disadvantageous economic choices — Magdalena Adamus

Magdalena Adamus, Eva Ballová Mikušková

Using a representative sample of 1682 Slovaks, the study investigated antecedents and negative consequences for personal finances of the endorsement of conspiracy theories. As a part of the first wave of a longitudinal study monitoring social and psychological impacts of the COVID-19 pandemic, participants responded to questions concerning their socio-demographic status, generic conspiracy mentality, COVID-related conspiracies, financial wellbeing, predictions about economic situation and willingness to change financial behaviour. The results show that people who experience more financial anxiety and consider their socio-economic status as lower endorse conspiracy theories more often. They are also more pessimistic about economic development in general and, unlike in models without conspiracy theories, less likely to make decisions that could alleviate precarious economic conditions they experience. By linking the endorsement of conspiracy theories with precarious economic conditions, the study offers a preliminary explanation of the uncontrollable spread of conspiracy theories in countries with high prevalence of economic insecurity such as Slovakia. The findings have far-reaching practical implications for developing tailored interventions protecting those most vulnerable from endorsing conspiracies and, consequently, from making decisions that would further perpetuate poverty and financial anxiety.

Do not make decisions on an empty stomach: the impact of hunger on attention and choice mechanisms across domains — Jennifer March

Jennifer March, Sebastian Gluth

Hunger is a biological drive, with the function of motivating a mechanism to eat to reach homeostasis. Recent studies suggest that hunger drives participants to choose not only more hedonic food options, but hedonic options across domains. Yet, the cognitive mechanisms that describe how hunger affects food-related decisions, and whether and how these effects generalize to other forms of value-based decisions remains elusive. To fill this gap, we asked participants choose between three different types of value-based decisions (i.e., food choice, delay discounting, social choice) in a hungry and a satiated state (within-subject design) while their eye-movements were being recorded. We found that participants were more likely to choose tasty over healthy food items. There was no effect of hunger state on delay discounting and social choice. Analyses of response times across tasks provide strong evidence that hunger affects the mechanisms underlying the choice process across domains. Further analyses of the eye-tracking data and the implementation of a dynamic process model of decision making will elucidate domain-specific and domain-general effects of hunger on attentional dynamics and preference formation across various types of value-based decisions.

The effects of resource inequality on bribery — Karolina Ścigała

Karolina Ścigała

People differ fundamentally in their propensity to engage in bribery. In the present contribution, we tested the effects of inequality of (monetary) resources between bribers (individuals who can offer bribes) and bribees (individuals who might receive bribes) on bribery. In doing so, we implemented a bribery game where bribers and bribees could engage in bribery to increase their monetary outcomes at the cost of other participants. To manipulate resource inequality, we allocated each briber with a high or a low endowment (resulting in “rich” and “poor” bribers) and matched them with a bribee who either received a high or a low endowment (resulting in “rich” and “poor” bribees). We found that rich (vs. poor) bribees exhibited a stronger preference for (1) accepting bribes from rich, rather than poor bribers, and (2) accepting higher, rather than lower bribes. In line with these preferences, rich bribers offered higher bribes to rich, than to poor bribees. However, both rich and poor bribers offered a similar number of bribes to rich and poor bribees.

Finally, rich and poor bribers benefitted in different ways when engaging in bribery: to get their bribes accepted, rich bribers had to spend lower proportions of their endowments than poor bribees, however, rich bribers had to spend more in absolute terms. Hence, rich bribers' resources were less impacted by the bribes they paid, while poor bribers benefitted by paying lower bribes (in absolute terms) for the same service.

Exploring the Impact of Scarcity Salience on Cognitive Performance: A Systematic Review and Empirical Study of Socioeconomic Moderators — Peter Szecsi

Peter Szecsi, Barnabas Szaszi

While the salience of financial scarcity may not affect the cognitive performance of the wealthy, it can lead to a decline in the performance of the poor. For instance, including questions with financial-scarcity-related words in high school exit exams may make it more difficult for low-income students to gain admission to universities, exacerbating socioeconomic disparities. However, research exploring this effect has produced heterogeneous and inconsistent results. In our studies, we aimed to provide a more accurate estimation of the impact of scarcity salience and to explore contextual and interpersonal moderators of the scarcity salience effect in order to identify the affected groups of society and the situations where the effect may occur with potentially negative consequences. For that, we conducted a systematic review and Bayesian meta-analysis, as well as an empirical study ($n = 352$). We concluded that if the effect exists, the overall effect size is smaller than previous research suggested ($g = 0.08 [-0.05, 0.21]$), and a large sample size is necessary to confidently estimate the impact and the effect's potential moderators of financial-scarcity-related cues on cognitive performance. Additionally, we were able to draw a number of methodological and theoretical recommendations that future empirical investigations can benefit from.

DECISION FROM EXPERIENCE

The Interplay of Sampling and Integration Strategies in Decisions from Experience — Linus Hof

[Linus Hof](#), [Veronika Zilker](#), [Thorsten Pachur](#)

Decision making from experience involves a series of information-processing steps, including information search (sampling), integration (evaluation), and stopping. Which strategies do we use during each of these steps and how does their interplay shape the process of preference construction? Here, we model the interaction of different sampling and integration strategies within a sequential sampling framework. We simulate the sampling and decision processes for a set of binary choice problems and characterize the resulting choice behavior in terms of decision quality (EV maximization) and Cumulative Prospect Theory's (CPT) weighting and value function. We find that maximization rates vary systematically with the interplay of different sampling and integration strategies. While accounting for sampling error, we also find that shifts in choice behavior due to changes in the underlying processing strategies are reflected in distinct shapes of CPT's weighting and value function. For instance, with a round-wise integration of outcomes, changes in the sampling strategy shift preferences for average returns to frequent returns. Such a shift is reflected in an S-shaped weighting function and a highly compressed value function. In all, our simulations underscore the potential of explaining decisions from experience by way of simple underlying processing strategies and their interplay.

No Description-Experience Gap in Choices Between a Described and an Experienced Option — Kevin Tiede

[Kevin Tiede](#), [Wolfgang Gaissmaier](#), [Thorsten Pachur](#)

People choosing between risky options seem to evaluate the options differently depending on whether they learn about them from description or from drawing sequential samples from the payoff distribution (i.e., experience). Does this impact of learning mode on the evaluation of risky options—referred to as description-experience gap—depend on whether the choice is between options presented in the same vs. different learning modes?

We examined this question by comparing people's choice and search behavior in a mixed-mode condition, where they chose between a described and an experienced option, with behavior in a purely description- or experience-based condition. Using cumulative prospect theory (CPT) to model choices and measure people's subjective representations of outcome and probability information, we found clear differences between the purely description-based and the purely experience-based conditions. In the mixed-mode condition, however, the discrepancies in the subjective representations of the described and the experienced options disappeared. Furthermore, per-option search effort was higher in the mixed-mode condition than in the purely experience-based condition. Our findings suggest that having to choose between options with mismatched learning modes has an important influence on preference construction, and this influence can mitigate differences in how described and experienced options are evaluated.

Choosing between experienced or described information in risky choice: Effects of prior usage — Ashley Luckman

Ashley Luckman, Emmanouil Konstantinidis, Sebastian Olschewski, Mikhail Spektor, Leonardo Weiss-Cohen

Making risky choices is an unavoidable part of life: from choosing investments and medical treatments, to buying consumer products. When making a decision, people can learn about their options in two different ways: by reading descriptive summaries, (e.g. warning labels on medication); or from direct personal experience (e.g. prior adverse reactions). While extensive research has been conducted on how people's risk-preferences differ based on the type of information given, the Description-Experience Gap, recently interest has grown in situations where both types of information are potentially available. Research conducted by Weiss-Cohen et al. (2016, 2018) has suggested that when given both types of information, description and experience, individuals tend to assign more weight to the experiential information. However, when Lejarraga (2010) asked participants which source of information they would prefer if only one were available the majority of participants preferred descriptions. In an experimental study we look at whether prior experience with using the different types of information could drive this discrepancy. Based on Lejarraga (2010) we expected participants to overall prefer descriptive information, but that prior usage of both may increase preference for experiential information. While we find the expected preference for descriptive information, prior experience had no impact.

A description-experience gap in face stereotyping — Lisheng He

Hongyi Wang, Yilun Lu, Lisheng He

Face stereotypes are prevalent and consequential. In this paper, we investigate an experience sampling account of face stereotyping. In two experiments, we show that, in a sampling-based Trust Game, participants in the role of an investor were much more likely to play the game with trustees with trustworthy faces than those with untrustworthy faces (Experiment 1). Crucially, this endogenous experience sampling bias has amplified the behavioral consequences of the face stereotype (i.e., facial trustworthiness). In contrast, when the information of both attributes was directly described with no sampling constraint to the participants, the face stereotype had a very limited effect on investment decisions (Experiment 2). We conclude by suggesting that the description-experience gap paves a promising avenue for studying sampling-based accounts in social cognition and decision-making.

Regret matters more than disappointment or absolute loss in small-stakes repeated decisions-from-experience — Tim Rakow

Tim Rakow, Eyal Ert, Maria-Antonia Grosu, Judith Avrahami, Yaakov Kareev

We report a multi-experiment investigation of repeated decisions-from-experience. In each experiment, each participant completed 4 decision tasks. Each task comprised 60 incentivised choices between a pair of binary-outcome options, with immediate feedback for obtained and forgone outcomes. The option structure was manipulated across experiment: identical outcomes for both options; safer vs. riskier options; possible outcomes interleaved between options, i.e., (4,2) vs. (3,1). Within each experiment, we manipulated the outcome probabilities, such that which option was superior and whether 'wins' were generally (in)frequent varied between tasks. The primary research goal was to compare the role of disappointment (receiving the lower outcome from an option) and regret (obtained outcome < forgone outcome) as drivers of choice. An auxiliary question was whether this, or any other feature of participants' choices, differed between the loss and gain domains. Within these experiments, implied regret consistently predicted patterns of choice more effectively than implied disappointment, and patterns of choice barely differed between the loss and gain domains. Our findings demonstrate that relative loss and regret are more important than absolute loss and disappointment for determining choice in low-stakes decision tasks that provide decision makers with full feedback for their repeated choices.

The Description - Experience gap in cooperation — Orestis Kopsacheilis

Orestis Kopsacheilis, Dennie van Dolder, Ozan Isler

Many people are conditionally cooperative: they cooperate if others do so as well. Conditional cooperation is usually investigated in experiments where the choices of others are known. In many circumstances, however, there is uncertainty about the cooperativeness of others. Using a novel experimental protocol, we manipulate the information subjects receive regarding the likelihood that their partner cooperates in a Prisoner's Dilemma, and whether this likelihood is described unambiguously or learned through experience and thus ambiguous. In all treatments, subjects' cooperation rate increases monotonically with the likelihood that their partner cooperates. Comparing decisions made under description to those made under experience, we observe a description-experience gap in which rare events appear to be more influential under experience than under description. This contrasts with earlier results from the individual choice literature, which typically finds the opposite pattern. Additional measures reveal that the gap is driven by conditional cooperators, who seek and respond to social information more than other types. We argue that stronger priors under social than individual uncertainty can account for this reversal and, in a second experiment, confirm that priors are indeed stronger under social uncertainty.

Frequent-winner options and skewness preferences — Mikhail Spektor

Mikhail Spektor, Sebastian Olschewski, Gaël Le Mens

What is people's attitude towards the (a)symmetry of an outcome distribution? Financial investors seem to prefer right-skewed outcome distributions, with frequent small returns but few very large ones, a pattern that is supported by experimental investigations in which people make decisions based on descriptive information. However, experiments relying on experienced information find the exact opposite result. The present study links these seemingly contradicting findings by systematically investigating skewness preferences in experience-based decisions. Across seven experiments, we show that apparent preferences for left-skewed outcome distributions are a consequence of those distributions "winning" most direct comparisons. By manipulating which option is the frequent winner, skewness preferences can be reversed. Crucially, without a frequent winner, we find that people have an innate preference for right-skewed outcome distributions. This phenomenon is robust to variations in outcome distributions and experimental paradigms.

We confirm our behavioral conclusions using a formal model comparison in which a reinforcement-learning model with mechanisms accounting for innate skewness preferences and frequent winning provided the best account of the data. Our study not only reconciles conflicting findings from financial markets and lab experiments, it also highlights the need of theories that take the joint outcome distributions of the available options into account.

Evidence Accumulation in Unimodal and Bimodal Payoff Environments: A Sequential Sampling Approach to Decisions from Experience — Doron Cohen

[Doron Cohen](#), [Laura Fontanesi](#), [Jörg Rieskamp](#)

One of the most dominant theory in psychological research assumes decisions are made based on the sequential accumulation of noisy evidence to a decision boundary. The current work extends this approach to value based preferential choice between unimodal and bimodal (skewed) monetary payoff distributions. In two studies, we show that a popular assumption, that evidence accumulates as a running sum of the observed evidence, does not generalize to choice environments that include rare extreme events. We propose and test a novel cognitive model that integrates sequential sampling theory and insight from decisions from experience research. This model assumes people categorize experiences based on an estimation of the inferred probability function that generated the observed sequences. The model retrieves previously observed information from the most similar category (to the current sequence) and integrates these experiences toward an absorbing decision threshold. Our results strongly favor this DfE-inspired accumulation model, both for its qualitative and for its quantitative predictions. Our model best predicted response times and choice both at the aggregate and the individual level, and successfully predicted the unique pattern of reaction to rare extreme events. We conclude with a discussion of optimality, ecological validity, and feasibility of our retrieval-based accumulation account.

CONFLICT

Learning to Disagree: An NLP Feedback System for Encouraging Conversational Receptiveness — Burint Bevis

Burint Bevis, Michael Yeomans

In the “heat of the moment”, disagreements can quickly spiral into harmful conflict. Those with good intentions struggle to overcome their emotions when important ‘hot-button’ topics are discussed. In addition, current approaches such as removing posts and individuals do little to change behaviour. Using an interdisciplinary approach, we build an online feedback system to encourage language that signals mutual respect and understanding when discussing ‘hot-button’ topics - conversational receptiveness. The feedback system is an automated machine-in-the-loop System for Encouraging Conversational Receptiveness (SECR), personalized to the individual users. We view SECR as an ex-ante approach to avoiding online conflict spirals that can complement current ex-post banning approaches. Using participants recruited from Prolific, we show that users were willing to revise their messages before sending them based on the suggested feedback. However, we also identified that users had concerns over the sincerity and implementation difficulty of using SECR. Overall, we demonstrate a viable pathway for encouraging behavior change for individuals motivated to communicate more receptively but who lack the skills or awareness to do so in the heat of the moment.

It's not that bad to speak up: Are the interpersonal consequences caused by expressing dissent as negative as we believe them to be? — Yuqi Chen

Yuqi Chen, Jingyi Lu

Expression of dissent is essential for high-quality decisions. Then, why do people often avoid expressing their views when they disagree with others? Our studies revealed that dissenters systematically overestimated the negative interpersonal consequences of stating their view to receivers who had put forward a view in both real (Studies 1 and 2) and hypothetical (Studies 3 to 7) settings. These mispredictions were driven by the differences between dissenters and dissent receivers in their foci on the benefits and harm experienced by receivers (Studies 6 and 7).

Dissenters paid more attention to the detriment (rather than the benefit) that might be experienced by the receivers than the receivers did. We also found that dissenters' predictions influenced their willingness to state an opposing view (Study 8). Our research suggests that dissenters misunderstand the interpersonal consequences of dissenting, which may create a misplaced barrier to dissent expression. Theoretically, our research extends research on dissent inhibition, mispredictions in attitude conflict, and interpersonal communication. Practically, our research provides a feasible approach for promoting employee voice.

I'm sorry if you are: The risk of apologizing first — Valeria Burdea

Shereen J. Chaudhry, Valeria Burdea

Resolving conflict is critical for maintaining harmonious relationships. Apologies are powerful tools for reconciliation, so understanding (and addressing) barriers to apologizing can be a boon to long-term cooperation. But existing research leaves critical blind-spots in this area by focusing on one-sided blame conflicts: We find that most unresolved conflicts actually involve mutual (two-sided) blame. Using a game theoretic framework, we highlight strategic considerations that are unique to mutual blame conflicts and identify an unexplored barrier to apologizing: the risk of not receiving a return apology. We propose that people expect the pain of apologizing first to be lessened when followed by a return apology, even more so than when followed by forgiveness. Therefore, people are less likely to apologize first than second, and this is moderated by their expectations of getting a return apology. We find support for the theory's predictions across seven pre-registered studies utilizing multiple methods including real behavioral interactions with monetary incentives, event recall paradigms, and scenarios ranging from interpersonal work conflicts to international diplomatic ones. We discuss how our game theoretic setup can be utilized to analyze the dynamics of apologizing beyond the findings we present here, highlighting an unexplored avenue for research in conflict management.

Conversational receptiveness transmits between parties and reduces affective polarization
— Michael Yeomans

[Julia Minson](#), [Michael Yeomans](#), [Charles Dorison](#), [Francesca Gino](#)

Given the central role of dialogue in civic life, a growing research literature has focused on the causes of—and remedies for—people's inability to have productive discussions across ideological divides. Here, we focus on “conversational receptiveness”—defined as the use of language to behaviorally demonstrate one's thoughtful engagement with opposing views and how it affects dialogue between opposing partisans. Prior research on conversational receptiveness used natural language processing to identify specific words and phrases that build trust in spite of disagreement. Here we first show that conversational receptiveness enacted by one party predicted receptiveness by the other party in field data from conversations between students in large online class forums. We also show that randomly assigning lab participants to brief receptiveness training increased the use of conversational receptiveness by an untreated out-party counterpart. We find this transmission is driven by a deeper shift in linguistic style associated with conversational receptiveness, and distinct from simpler mechanisms such as mimicry or emotion contagion. In turn, it causally reduced affective polarization toward both the person being receptive and their party. Together, these studies show that conversational receptiveness is an effective tool for shifting behavior during conflict, and subsequent attitudes.

Fight or flight? Social concerns for other group members increases conflict participation
and can escalate intergroup conflict — Luuk Snijder

[Luuk Snijder](#), [Jörg Gross](#), [Mirre Stallen](#), [Carsten De Dreu](#)

One important reason that humans engage in intergroup conflict is to defend themselves against hostile outgroups. Previous work has identified several mechanisms that impact defensive aggression. Yet, the specific circumstances under which individuals are willing to join other group members to collectively defend against out-group aggression remains poorly understood. We examined conflict participation in two interactive repeated attacker-defender games ($n = 240$ per experiment), in which defenders were given the option to stay (and participate in conflict) or leave. If defenders left, they escaped the attack by the other group, but leaving was costly and not always possible for all group members.

By systematically manipulating the cost of leaving (experiment 1) and defenders' leaving abilities (experiment 2), we show that defenders' decisions to take part in conflict were not driven by rational cost-benefit calculations; defenders stayed even when leaving was clearly the more profitable strategy for them. Defenders were especially likely to participate in conflict when other group members could not leave, revealing that social concerns for others can, somewhat paradoxically, escalate conflict and harm overall social welfare. We further show that conflict participation was partly explained by history of conflict, social norms, and individual preferences.

Loyal Friends and Honest Strangers: The effect of social proximity on the moral judgment of snitching — Shahar Ayal

Shahar Ayal, Tomer Mazlich, Timothy Levine, Guy Hochman

Snitching behavior, namely the decision to report on the ethical violations of others often creates a tension between honesty and loyalty. The current research aims to examine the effect of social proximity (between the perpetrator and the potential snitch) on how people judge snitches. In Study 1, we found that when the perpetrator was socially close, participants showed less intent to snitch, and snitches were judged as less moral. In contrast, when the perpetrator was distant, participants showed greater intent to snitch, and snitches were judged as more moral. Studies 2 and 3 explore the underlying mechanism of this effect. The results confirmed our proximity hypothesis. In close relationships, loyalty values tend to be stronger than honesty and snitching was perceived as immoral. However, in distant relationships, honesty became more salient than loyalty, leading to more positive moral judgments of snitching behavior and fewer social sanctions on snitches. We conclude that people do not have a fixed personal hierarchy between honesty and loyalty, but rather proximity affects the prominence of these values and their priority, which in turn determine the decision to snitch and moral judgements of snitching.

What do we punish for? An experimental inquiry in criminal punishment — Maciej Próchnicki

Piotr Bystranowski, Bartosz Janik, Maciej Próchnicki

What do we punish for, when imposing punishment on a person convicted of a crime? It is often noted that the object of punishment may be elusive and the discretionary sentencing process may include factors other than a deed described in the criminal code. In this experimental vignette study, we explore whether two phenomena related to the presence of suspicion of another serious crime, namely proxy crimes and pretextual prosecution, influence participants' (both legal professionals and laypeople) punitive attitudes and sentencing decisions.

Experimental test of the effects of punishment probability and size on the decision to take a bribe — Štěpán Bahník

Štěpán Bahník, Marek Vranka

Punishment is one of the main methods for preventing corruption. However, studies on the effect of size and probability of punishment on bribe-taking have not yielded conclusive results, possibly because studies often abstract from internal costs of wrongdoing. We introduce a punishment by a fine or termination of the task, both with varying probabilities, in a laboratory task modeling the decision to take a bribe. The punishment decreased the probability of taking higher bribes, even though the probability of taking lower bribes was unaffected. Participants took fewer bribes when the fine was larger and more probable. We did not observe any clear negative effects of small punishment crowding out intrinsic motivation to behave honestly. However, we found that the effects of punishment differ based on emotionality and honesty-humility of participants. The study shows that the prospect of punishment may deter dishonest behavior; however, personality characteristics should be taken into account when devising an effective deterrence policy.

DECISION PROCESSES & INDIVIDUAL DIFFERENCE

The Choice of Ideology and Everyday Decisions — Thomas Gries

Carina Burs, Thomas Gries, Veronika Müller

Individuals strive to make decisions that are consistent with not only their consumer preferences but also their psychological needs. However, they are confronted with large amounts of complex, ambiguous or even false information. Ideologies and belief systems provide guidance when processing and evaluating information and give a coherent and comprehensible interpretation of reality. As belief systems have this important function the first question is: why is an individual attracted to a particular belief system? Individuals choose a belief system that resonates with their subjective psychological needs and preferences. Second, how do individuals search for ideologies and find out which suit them best? We model an individual's sequential information search for the best matching ideology by applying Bayesian learning and standard utility optimization. Searching for additional information enhances utility by reducing uncertainty. As a search is costly, the process may stop once an individual adopts an ideology even if the information set remains incomplete.

Third, once they have chosen particular ideologies, individuals adhere to its rules and norms when making everyday decisions. Consumers not only physically consume, they also strive to act in accordance with their psychological needs. Belief-based consumption serves not only individuals' consumption preferences, but also their psychological demands.

Structured analysis of personal criteria can save lives in joint (but not separate) evaluation
— Tom Gordon-Hecker

[Tom Gordon-Hecker, Tehila Kogut](#)

Helping decisions are susceptible to many biases. Attempts to overcome these biases by prompting deliberative thinking have often been unsuccessful. We propose that this is because deliberation manipulations ask people to think, but do not tell them what to think about. We propose a way of directing people's attention to the most important aspects of the situation, by asking them to rate the extent to which different attributes should be considered. We term this method "structured analysis of personal criteria". In three experiments we find that structured analysis of personal criteria leads people to prefer human lives over economic considerations (Experiment 1) or over preference for their ingroup (Experiments 2 & 3). Importantly, we demonstrate the non-paternalistic nature of this method by showing that it only leads to saving more lives if that aspect is most important to the decision maker (Experiment 2). Finally, comparing joint and separate evaluations of the different thinking styles, we show that the structured analysis method affects decisions by allowing people to actively compare the different alternatives. Together, the findings demonstrate that structured analysis of personal criteria highlights the importance of human lives, and leads decisions to be life-maximizing, overcoming other considerations and biases.

Click or Skip: Decision to Engage with Mobile Health Data Collection — Michael Sobolev

[Michael Sobolev](#)

Lack of engagement is a critical barrier to the utility of digital interventions and mobile health applications. The purpose of this study is to understand the decision to engage in longitudinal mobile health data collection by exploring how and why response to digital prompts changes over time. We use data from multiple health-related ecological momentary assessment (EMA) studies (N=573) with a total of 65,974 digital prompts delivered over several weeks and randomly throughout the day.

The data were analyzed with time-varying effect modeling (TVEM) to estimate time-varying response to digital prompts across days, as well as the time-varying effects of response to previous prompt and the average response rate on likelihood of current response. The results of the current study indicate that both average response rate and response to previous prompts are highly predictive of the decision to engage with the next prompt over time. Our findings also suggest that these heterogeneous patterns of engagement continue to develop even after several weeks of data collection. These insights can be used to guide the development of just-in-time interventions to optimize engagement.

Scale Midpoint Misuse: Understanding and Mitigating the Impact on Experimental Conclusions — Mili Mormann

Mili Mormann

Behavioral scientists rely heavily on measurement scales to operationalize theoretical constructs of interest. The midpoint of these scales is meant to represent a neutral opinion on the topic. However, participants can also use the midpoint when they have no opinion, do not care, or are unsure how to respond, which we call midpoint misuse. We observe that in some behavioral research tasks, midpoint responses comprise up to 70% of the data, and a substantial proportion of these responses qualify as midpoint misuse, not a truly neutral opinion. While previous research has acknowledged this problem, its pervasiveness and impact on experimental conclusions have remained largely unexplored. In the current research, we show how midpoint misuse affects the conclusions drawn from the data: in some cases increasing the likelihood of false positives and in others increasing the likelihood of false negatives. Importantly, we provide a set of tools for researchers to address participants' midpoint misuse, which leads to improved data quality and more valid conclusions.

The influence of variance on active search in category learning — Ann-Katrin Hosch

Ann-Katrin Hosch, Janina A. Hoffmann, Bettina von Helversen

People may actively search for exemplars of each category when learning to discriminate categories in real life. We investigate how category variance, i.e., how much the exemplars vary from one another, influences search length in a novel category learning task. In this task, participants sampled category exemplars of two categories until they felt they could categorize the objects.

We manipulated the categories' variance by using a low, medium, and high level of distortion from a prototype. In experiment 1, we found that people search less when category variance levels differ than when they are equal. In experiment 2, we find that search length is a combined effect of the variance levels of the category and its counter category. In addition, we propose a cognitive model of the search process assuming a within-category learning process and a between-category discrimination process. We find that the model better predicts participants' sampling behavior than a model not assuming a within-category learning process or a model without a discrimination process.

In sum, we provide a study elaborating on the influence of variance on category learning showing that not only the category's variance is crucial to search length, but the counter category's variance is likewise influential.

Attentional dilution causes attributes to be over/underweighted in choice depending upon the number of informative and uninformative attributes — Song Dai

[Song Dai](#), [Tim Mullett](#), [Daniel Read](#)

Attentional dilution effect describes a mechanism by which attention is split between all available attributes that differentiate between the options, and that this attention is proportional to the weight given to an attribute in choice. In this study, we directly investigated the predictions of attentional dilution using eye-tracking to capture individuals' visual attention in two multi-attribute choice experiments. The behavioural results for both measures, showed the inferred decision weight given to an attribute was lower in trials where the options were differentiated by a higher number of attributes. The results of the eye-tracking analyses are consistent with the predictions of attentional dilution in both experiments. Greater attention is given to differentiating attributes over non-differentiating attributes. The overall proportion of total looking time towards an attribute decreases in proportion to the number of differentiating attributes. While total looking time increases with more differentiating attributes, this is not in direct proportion. These results have significant implications, not only for models of attention in choice, but for all multi-attribute choice. The strength of the dilution effect means that it must be considered both in future studies of choice and valuation, but in the interpretation of many past findings.

Covert attention in real-life shopping behavior — Anna Dreneva

Anna Dreneva, Jacob Lund Orquin

Covert attention is the ability to attend to and identify objects without directly gazing at them. There is a knowledge gap about covert attention in real-life consumer behavior. We aim to demonstrate whether covert attention is used during online shopping, and if so, how it influences decision making. We hypothesize that covert attention is actively involved in real-life shopping behavior by allowing decision makers to covertly and thus effectively screen out product options to form a consideration set. The main study is observational. First, participants complete a questionnaire about their usual online shopping. Then, during Session 1 the participant performs their usual online shopping while their eye movements are being recorded. After completing Session 1 participants are asked to fill out several short personality tests. Session 2 includes a questionnaire requesting participants' subjective values (preferences) for products from a subset of the categories they purchased from. The analysis will include a qualitative examination of eye-tracking data, along with its quantitative examination, personality trait scores, and subjective product values. The study will provide a completely novel highly ecological quantitative and qualitative data set on visual attention and decision making processes in real-life shopping behavior.

Stochastic choice and imperfect judgments of line lengths: What is hiding in the noise? — John Smith

John Smith

Noise is a ubiquitous feature of economic choice. However, standard economics experiments are not well equipped to study the noise because experiments are constrained: preferences are either unknown or only imperfectly measured by experimenters. As a result of these designs where the optimal choice is not known to the experimenter, many questions about the noise in apparently random choice cannot be addressed. We design an experiment to better understand stochastic choice by directing subjects to make incentivized binary choices between lines. Subjects are paid a function of the length of the selected line, so subjects will attempt to select the longer of the lines. We find a smooth (not sudden) relationship between the difference in the lengths of the lines and the optimal choice. Our analysis suggests that the errors are better described as having a Gumbel distribution rather than a normal distribution. We find evidence that suboptimal choices are associated with longer response times than are optimal choices, which appears to be consistent with the predictions of Fudenberg, Strack, and Strzalecki (2018). In our experiment, 54 of 56 triples are consistent with Strong Stochastic Transitivity.

MOTIVATED REASONING

Consumer Trust and Product Choice in Online Marketplace: A Motivated Belief Perspective —
Xianchi Dai

Yu (Anna) Lin, Xianchi Dai, Wenjie Tang

E-commerce platforms invest substantial resources and efforts to improve consumers' trust in online marketplace. Although past studies have demonstrated a variety of positive impacts of trust building on platforms, little is known about its potential negative impacts. In this research, we propose an unintended positive impact of low trust on platforms. In particular, consumers with relatively low trust in a platform will tend to choose products offered at higher prices. This effect emerges because consumers with relatively low trust in a platform are motivated to believe that higher-priced products have higher quality, and thus have a greater preference for these products, which in turn increases the platforms' revenues. A unique dataset obtained from an e-commerce platform and a series of online experiments provide convergent support for the proposed effect of low trust on price choices and the mechanism underlying this effect.

Reasoning vs. prior beliefs: The case of COVID-19 fake news — Vladimíra Kurincová Cavojová

Vladimíra Čavojová, Matej Lorko, Jakub Šrol

This paper extends previous findings on the role of analytic thinking in trusting and sharing fake news by examining also the role of scientific reasoning, conspiracy mentality, unfounded beliefs and beliefs in conspiracy theories in the novel context of COVID-19 fake news. Our study was conducted on a sample of 1838 participants (aged 18 to 85, with a mean age of 45 years, and 53% female) recruited from the Slovak general population. We found that the ability to distinguish between fake and real news about COVID-19 was significantly positively correlated with vaccination status and scientific reasoning, while significantly negatively correlated with conspiracy mentality and with beliefs in pandemic-related conspiracy theories. Analytic thinking is not a significant predictor. Although fake news is generally less likely to be trusted and shared than real news, when fake news is consistent with preexisting opinions, people are more willing to share it compared to belief-consistent real news. Thus, consistency with one's beliefs is the best indicator of trust in fake news and willingness to share such news.

Motivated sampling of information – Analysis with a Bayesian framework using experimental data and agent-based modelling — Leon Houf

Vinicius Ferraz, Leon Houf, Christiane Schwieren

This paper studies a specific application of motivated reasoning: sampling for information when objective and subjective criteria are coupled. We use a mixed method approach combining human participant experiments and agent-based modelling to gain a comprehensive understanding how motivated reasoning affects sampling, decision and learning behaviour.

In our online experiment, we first gather preferences on externalities. Then, the experimental task itself requires agents to compare information from two sources to determine which has a higher distribution. Here we attach the externalities asymmetrically to the info sources.

Through a between-subject design we identify the causal effects of the externalities on agents' sampling and decision behaviour in the task. We also vary the feedback given to agents to explore the impact of learning on motivated reasoning. By comparing prior and posterior beliefs, as well as human agent data with simulated data within a Bayesian framework, we distinguish subjective and objective criteria in decision-making.

Our results shed light on learning processes in a context of motivated reasoning which can inform the design of feedback systems in an environment with repeated information search.

The Wason selection task in the long-run: Evaluating the validity of (probabilistic) statements through evidence search — Konstantinos Armaos

Konstantinos Armaos, Ulrich Hoffrage

To investigate, in an ecological way, how people test the validity of conditional statements of the form “If P, then Q”, we introduce a modified version of the Wason task, in which participants see four decks of cards instead of four cards. Each card represents one unique observation and participants are asked to turn as many cards as they deem necessary to judge the validity of the statement. Reaching the correct (incorrect) conclusion is rewarded (penalized) with some money, and turning a card incurs a small cost. This design allows us to extend the question of how people search for evidence when scrutinizing the validity of deterministic conditional statements into the more complex domain of probabilistic statements such as “If P, then Q with probability x” or “P increases p(Q)”.

Whereas deterministic statements can be falsified by one single card (P and not-Q), evaluating probabilistic statements requires turning more cards. Both for deterministic and probabilistic statements we develop prescriptive models of how search, stop, and decision rules should look like in various information environments (that are characterized by different base rates and different conditional probabilities), and we contrast actual behaviors observed in experiments with these models.

Bayesian Inference: How the Heuristics-and-Biases View Unfolded in Economics — Tomás Lejarraga

Tomás Lejarraga, Ralph Hertwig

In the 1970's, psychology experienced a dramatic change. Experiments on statistical intuitions went from experiential studies to descriptive studies (Lejarraga & Hertwig, 2021), and this change brought a new view of the mind: People were no longer “intuitive statisticians”, but biased and prone to error. For example, early studies on Bayesian inference used experience-based methods and concluded that people were “conservative Bayesian”. Later studies adopted descriptive methods and concluded that people were “not Bayesian at all”. Because Bayesian inference is a central assumption in economic theory, economists set out to study Bayesian inference experimentally. What methods did they adopt and what were their conclusions? We conducted a systematic literature search to address these questions. Economists were drawn to the study of Bayesian inference through the findings of the heuristics-and-biases program, but did not adopt the descriptive methods in that program. Instead, they used Ward Edwards' experiential approach. Two-thirds of the studies examined involved feedback, and the median number of responses by participant was 54—higher than 3 in the heuristics-and-biases tradition. Yet, economists' views on Bayesian inference are mixed: Some conclude people are mostly Bayesian, while others see people's inferences as biased.

Reexamining the positive manifold of human cognition — Keela S Thomson

[Keela S Thomson](#), [Daniel M Oppenheimer](#)

One of the primary takeaways from research on human intelligence is the positive manifold: cognitive abilities correlate with each other such that a single factor (general g) is thought to underlie human cognitive ability. This pattern of results has been extensively replicated with numerous intelligence tests. However, prominent theories and tests of intelligence have focused on a cluster of cognitive abilities that require effortful, deliberative, working memory-dependent processing like logical, spatial, and verbal reasoning that fall under the umbrella of type 2 cognition. In contrast, the field has largely ignored effortless, intuitive, working memory-independent abilities like implicit learning that are considered type 1 cognition. An interindividual differences study investigated whether type 1 cognition is the long-neglected “other half” of human intelligence. An examination of correlations among three recently developed tests of type 1 cognition revealed that they do not consistently correlate either with each other or with three traditional intelligence tests measuring type 2 cognition and therefore “break” the positive manifold. These findings stand in contrast with the predominant theorizing in the study of human intelligence and suggest that a paradigm shift may be on the horizon.

How Do People Learn? The Impact of Gamified and Passive Learning on Discernment — Shaye-Ann Hopkins

[Shaye-Ann Hopkins](#), [Rebecca Rayburn-Reeves](#)

As misinformation continues to spread and impact democracy, inoculation theory shows evidence that beliefs can be protected against influence through exposure to manipulation techniques. Both active and passive learning have been tested, mostly independently, to determine how these inoculation techniques impact discernment.

In a preregistered study (n = 543), we developed two tools to help users understand and spot manipulation in election-based misinformation: an interactive game (Politricks) and a passive inoculation guide. This study tested both mechanisms compared to a control group where participants played Tetris. Both active and passive inoculation improved manipulation and misinformation discernment and reduced the likelihood of engaging with manipulative content.

This study found that both tools increased one's ability to detect manipulation compared to the control by around 6%. Furthermore, Politricks also improved accuracy discernment, where playing the game improved this by 5% for those with a stronger belief in the inaccuracy of election results. This game also decreased the likelihood of sharing and liking inaccurate content.

These results suggest that both active and passive inoculation techniques can be effective in reducing the effect of election-related misinformation and can be scalable solutions used to inoculate US voters.

Blame the Victim? A Rational Analysis — Craig R. M. McKenzie

Craig R. M. McKenzie, Sanjiv Erat

Victim blaming has been traditionally viewed as motivated, irrational, and wrong. But it's difficult to know if people are “doing it wrong” if we don't know what “doing it right” looks like. We present a rational model that provides a benchmark for assessing whether people blame victims when they shouldn't, or blame more than they should. The model has two factors: The degree to which the victim knowingly engaged in behavior that increased the likelihood of victimization, and the degree to which the victim could have behaved otherwise. Each factor is necessary: If either is zero, victim blame is zero. High victim blame occurs when a victim engaged in behavior that they knew greatly increased their chances of being victimized, and the behavior is highly unusual (i.e., the victim could have behaved otherwise, because virtually everyone else behaves otherwise under similar circumstances). The model also makes clear that victim blame and victimizer blame are independent; that is, victim blame does not mitigate victimizer blame. Victims are sometimes reluctant to report being victimized for fear of being blamed themselves and, perhaps implicitly, mitigating the victimizer's blame. Understanding this independence might remove an important obstacle to people reporting being victimized.

RISKY CHOICES III

Cognitive styles and framing effects in risky choice: A meta-analysis of mixed findings and an innovative empirical investigation. — Marc Wyszynski

Marc Wyszynski, Adele Diederich

We investigated the impact of cognitive styles on risky choice framing-effects using a meta-analysis and two experiments applying an innovative psychophysical data collection approach in the lab and a modified online-ready version. A meta-analysis of 14 studies revealed a marginal negative correlation between cognitive styles and framing-effect strength. The studies used psychometric instruments, samples, experimental procedures, and analysis methods inconsistently and the results varied in effect directions and sizes. We conducted two experiments using Tversky and Kahneman's Unusual Disease Problem setting and consistent psychometric instruments. We used a student sample in the lab and a more heterogeneous sample online. We analyzed framing-effects in two ways: counting the number of frame-inconsistent choices and comparing choice proportions depending on framing. In addition, we systematically varied other decision problem features. Cognitive styles moderated the framing-effect only in study 2. The effects of other problem features were also affected by cognitive styles but different for both studies and to different extents. We found no relationship between the number of frame-inconsistent choices and cognitive styles. The findings contribute to a better understanding of how cognitive styles affect framing-effects and highlight the need for a more consistent approach in future research on individual differences.

The role of numeracy in judgment and decision making: the replication of eleven effects using several numeracy scales — Agata Sobkow

Agata Sobkow, Tomasz Zaleskiewicz, Supratik Mondal, Kacper Jurewicz, Anna Pronczuk, Jakub Traczyk

Numeracy reflects one's ability to understand and process basic information about probabilities and numbers needed to make decisions. The aim of our study was to test the replicability of eleven effects showing the important role of numeracy in judgment and decision making. We extended the replicated studies by using several objective numeracy scales and measures of subjective as well as approximate numeracy.

Five correlational effects were successfully replicated using the same numeracy measures as the original studies (correctly applying decision rules, having superior financial knowledge and medical risk comprehension, maximizing the expected value, and drawing from the urn containing more winning jellybeans). Another three correlational effects were replicated using alternative, but not original numeracy measures (resistance to sunk costs, consistency in risk perception, financial well-being). Finally, three moderation effects were not successfully replicated (less numerate individuals being more prone to framing, more numerate individuals preferring the loss over the no-loss bet, and visual aids improving the interpretation of the predictive value of the diagnostic test among people with lower numeracy).

Group versus individual decision making under risk: Same biases but less noisy processing
— Christin Schulze

Christin Schulze, Juliane E. Kämmerl, Mehdi Moussaid, Wolfgang Gaissmaier, Thorsten Pachur

How do the risky choices and choice processes of groups differ from those their individual members already made privately? We examined the decisions of collaborating four-person groups and their individual members in a two-part study. First, individuals independently made a series of risky choices between 92 lottery pairs (gain-, loss-, and mixed-gambles); second, individuals were assigned to groups of four people and freely interacted to make choices in the same set of risky gambles. We found that interacting groups selected the gamble with the higher expected value more often than did the second-best and average individuals, and as often as their best individual members. Risk-seeking behavior, by contrast, did not differ between groups and the average individual. Applying cumulative prospect theory to model the decisions of interacting groups and their individual members, we found that groups made more deterministic choices—reflecting less error-prone behavior—but did not differ from individuals in loss aversion, sensitivity to outcome differences, or sensitivity to probability differences in the gain and loss domains. These results suggest that groups' information processing differs from that of independent individuals but that the preferences revealed in group decision making are comparable to those elicited in individual choice.

Effects of peer observation on risky decision-making in adolescence: A meta-analytic review — Bernd Figner

[Bernd Figner](#), [Katherine E. Powers](#), [Lena Schaefer](#), [Leah H. Somerville](#)

Health and crime statistics show adolescents as prone to engage in risks, particularly in the presence of peers. Although this peer effect has been documented in lab studies, existing evidence is mixed and the psychological mechanisms remain poorly understood. We conducted a pre-registered meta-analysis (i) to quantify the magnitude of the effect of peer observation on risky decision-making in adolescents, and (ii) to identify theoretically and/or methodologically relevant moderators.

Across 186 effect sizes—representing 62 studies and over 5,000 participants—we found that peer observation increases adolescents' decisions to take risks relative to decisions made while unobserved, with a small mean effect size (Hedges' $g=0.16$). This overall effect was significantly moderated by peers' expression of risk preferences, with the peer effect only significant when peers were expressing pro-risk preferences, but not when expressing anti-risk or risk-neutral preferences. This work shows that peer observation can increase adolescent risk-taking, but this effect is extremely small unless the peers express pro-risk preferences.

These results provoke questions whether the field's approach to studying peer influence is optimal and maximally translatable to real-world contexts. We offer suggestions for future work that could lead to a clearer understanding of adolescent peer-observation effects.

Are rare events socially amplified in group risky choice? — Miriam Kachelmann

[Miriam Kachelmann](#), [Wataru Toyokawa](#), [Wolfgang Gaissmaier](#), [Helge Giese](#)

Background: This pre-registered study investigates whether rare events tend to be over-shared and thus over-represented in social contexts.

Design: In a collaborative, split-pot, online group experiment, participants ($n=981$) played one loss and one gain game for 25 trials, each containing a non-diagnostic, high-risk and a diagnostic low-risk option, in groups ($N=253$) of 3 to 5. Depending on the experimental condition, participants could a) share received outcomes for a shared cost or not, and b) see a full description of both options (outcomes and probabilities) or not.

Findings: Sharing a low-probability event was significantly more likely than sharing a high-probability event, particularly for the high-risk option ($b=-0.41$, $OR=0.66$, $p<.0001$) and in the gain domain ($b=-0.67$, $p<.0001$, $OR=0.52$). While the sharing did not detectably affect the player's EV maximizing decisions, the overall group performance measured by mean individualized bonus reflected that the cost of sharing was not compensated by a positive impact on individual gambling choices ($F(1,249)=91.54$, $p<.0001$, $\eta^2=.27$).

Discussion: We found that the rarer an event, the more it gets socially shared indicating that an already existent outweighed influence of rare events on individual decision making may be exacerbated by social selection biases.

Production Rate Effects on Random Generation Elicitation — Lucas Castillo

Lucas Castillo, Pablo León-Villagr , Nick Chater, Adam Sanborn

Common elicitation methods, used to gather expert beliefs in policy or statistics, may only capture rough outlines of people's knowledge. Based on the idea that people generate samples to derive inferences (Chater et al., 2020), Le n-Villagr  et al. (2022) asked participants to generate random sequences to elicit their beliefs. Sequences elicited this way were competitive with decile elicitation at predicting people's judgments, and were able to reflect fine details of certain distributions that cannot be expressed via deciles alone.

Research on random generation has found that randomness declines as the production rate becomes faster, but this has not been studied with non-uniform distributions, and so the impacts of production rate in belief elicitation are unknown.

The current study investigates this: participants generated two random sequences of UK lifespans, at different speeds. We compare the two distributions that a participant generated and evaluate how well they correspond to the true distribution.

Our findings have implications for the application of this elicitation tool, showing whether production speed influences the properties of the elicited distribution. They also speak to cognitive modelers, by connecting the random generation literature to belief representation and sampling for inference more generally, providing evidence for a unified mental process across the three domains.

NEGOTIATION AND BARGAINING

Dynamics of Bargaining — Wenjia Joyce Zhao

Miruna Cotet, Wenjia Joyce Zhao, Ian Krajbich

Laboratory experiments have confirmed that subjects' response times (RT) reveal their strength-of-preference, and that the Drift Diffusion Model (DDM) can account for their behavior. We investigate whether the DDM can also account for choices and RTs in bargaining exchanges both in the lab and in the field where RTs are on the order of hours instead of seconds. Using a dataset of millions of eBay bargaining exchanges, we found that sellers' response times are strongly related to the size of the offer that they receive. The DDM can account for laboratory bargaining results but misses some aspects of the field bargaining RT data.

High-Stakes Failures of Backward Induction — Martijn van den Assem

Bouke Klein Teeselink, Dennie van Dolder, Martijn van den Assem, Jason Dana

We examine high-stakes strategic choice using more than 40 years of data from the American TV game show *The Price Is Right*. In every episode, contestants play the Showcase Showdown, a sequential game of perfect information for which the optimal strategy can be found through backward induction. We find that contestants systematically deviate from the subgame perfect Nash equilibrium. These departures from optimality are well explained by a modified agent quantal response model that allows for limited foresight. The results suggest that many contestants simplify the decision problem by adopting a myopic representation and optimize their chances of beating the next contestant only. In line with learning, contestants' choices improve over the course of our sample period.

The impact of Fairness Reasoning and Equality Concerns on Bargaining Behavior – A Text Protocol Analysis of Behavioral Experiments in Germany and China — Heike Hennig-Schmidt

Heike Hennig-Schmidt

We study how German and Chinese negotiators approach the coordination problem in tacit ultimatum bargaining situations in which communication is inhibited. Using a unique data set of transcripts from videotaped group discussions, we provide new insights based on authentic reasoning of the bargaining protagonists. We find that addressing fairness is a significant driver for achieving coordination particularly in Germany. The equal split is the focal point of orientation regarding offers and demands in symmetric but also in asymmetric bargaining settings. Nevertheless, about one third of the groups do not mention fairness. Fairness-related arguments or equal-split discussions alone have no consistent impact on offers and demands. Yet, offers increase significantly in the German and Chinese participant pools when fairness and equal-split reasoning are connected. Participants address the challenge of lacking communication by reflexive thought processes. They reason about their counterpart in two different modes of perspective taking but at low levels in both participant pools. Our findings support the view that the opponent's interests enter into the players' thought processes and that the equal split represents a particular coordination instrument in our tacit bargaining situation. How fairness-related arguments guide players' behavior is culturally bounded and context dependent.

Negotiation designs through the lens of situational affordances - A person-situation perspective on negotiation in public good settings — Dorothee Mischkowski

Dorothee Mischkowski, Jasper Siol, Isabel Thielmann

Negotiations can provide an effective means to increase collective contribution behavior to public goods, but also entail a risk for cooperative negotiation partners of being exploited. The negotiation design (i.e., the kind of commitment being made) can induce a reciprocal contribution behavior of all negotiating parties, thereby reducing the risk of being exploited and increasing the willingness to cooperate. The herein presented study investigates the influence of personality in different negotiation designs. Specifically, it tests when and for whom different types of commitment trigger increased cooperativeness.

In a preregistered, incentivized study (N = 245), we provide evidence for the relevance and predictability of active pro-sociality (i.e., Social Value Orientation and Honesty-Humility) when negotiating individual commitments. When negotiating common (i.e., uniform, collectively agreed upon) commitments, however, also conditional cooperators become willing to negotiate. In a similar vein, the negotiation outcome depends less on active pro-sociality when common (vs. individual) commitments are being made. In sum, our findings underline the importance and potential of changing situational affordances in social dilemmas to allow for reciprocity and thus to increase cooperative behavior.

Negotiators deceive less than we think: A theory of initial distrust in negotiation — Shira Garber

[Shira Garber-Lachish](#), [Simone Moran](#), [Boaz Keysar](#)

Negotiators face two dilemmas, whether to be honest and whether to trust their counterpart. We propose a theory that describes how they approach these dilemmas and show the consequences. We argue that negotiators adopt different models of motivations for the two dilemmas. When deciding whether to trust, they assume the other is largely motivated by greed. When deciding whether to deceive, negotiators are motivated not only by greed but also by moral-image concerns and anticipated guilt. Four studies (N = 931) provide evidence for this theory. We show that people grossly overestimate how much negotiators would deceive and that this results from overrating the extent to which greed motivates other negotiators' behavior. In contrast, negotiators are actually largely concerned with moral consequences and as a result, deceive much less than expected. This discrepancy is important because it could impede initial trust in negotiation, and consequently lead to inefficient agreements.

How Narcissists Match and Play in Games — Evangelia Spantidaki Kyriazi

[Evangelia Spantidaki Kyriazi](#)

Self-signaling and magical thinking in sequential games — Matthew Cashman

Matthew Cashman, Drazen Prele

We report a puzzling finding: In real-time Prisoner's Dilemma and Public Goods Games where players move sequentially, and with no information flow between players, cooperation declines with increasing order among subjects pre-tested to be maximizing cash winnings. For instance, selfish subjects at the beginning of a sequence of five players in a Public Goods Game contribute more than those at the end, with a roughly linear decline in between. They do this without knowing anything about others' moves: the only piece of information available in addition to that available in a standard PGG is their place in the sequence (e.g., "I am #4").

Given our task is formally equivalent to a standard Public Goods Game, this behavior is unexpected. We hypothesize that the decline in contribution with increasing order provides evidence for cooperation arising from pure self-interest: subjects feel that their unobserved actions increase the chance that others will behave similarly and change their behavior to suit. "If I have done it, others will too." The closer to the end of the sequence a person is, the fewer other players he or she might "influence", and therefore the lower the payoffs associated with cooperating.

Sharing the Benefits of Costly Help — David Budescu

Yaakov Kareev, Judith Avrahami, David Budescu, Tamar Kugler, Vered Tzameret, Tally Shmuel

Cases in which a costly helping act by a benefactor can greatly improve the outcomes of a beneficiary abound. Such help conforms with prevalent social norms and can increase collective welfare. We study how the surplus created through such help is shared by the benefactor and the beneficiary. We hypothesized that aspects of the situation, such as relative wealth, social distance, whether the help increased gains or prevented losses, and perspective may result in variations in this division. In two experiments we compare participants' judgements (N=695) and participants' bargaining choices (N=617 dyads). In both tasks the proposed compensation for the cost incurred while helping was affected similarly by the manipulated factors. We observed pro-social equalizing of outcomes, "nicer" treatment of family members than of commercial enterprises, and sensitivity to the fact that help-seeker was suffering a loss. However, whereas the judgments allocated to the beneficiary about 80% of the surplus generated, in (consequential) minimal bargaining the surplus was split more equally, as expected by economic theory. This gap raises doubts about the validity of using non-consequential measures.

SYMPOSIUM

LANGUAGE MODELS IN JUDGMENT AND DECISION MAKING RESEARCH

Convenors: Dirk U. Wulff & Zak Hussain

Advances in machine learning have produced language models that can interpret and generate large amounts of text. These models have tremendous value for research in the behavioral sciences; however, research is only beginning to exploit their potential. In this symposium, we aim to provide an introduction to language models and showcase research exemplifying four fundamental research directions: (i) how language models can be leveraged to build more accurate and generalizable models of behavior, (ii) how language models can be used as analytic tools in judgment and decision making research, (iii) how judgment and decision research can be used to understand and benchmark language models, (iv) how judgment and decision making research can help address ethical issues related to the application of language models. We hope this symposium will inspire future research in judgment and decision making utilizing language models and raise awareness about important practical and ethical challenges.

An introduction to language models (20 min)

Dirk U. Wulff

This presentation will provide an introduction to language models consisting of three parts. First, it will give an overview of the history of language models, which began in the early days of research on artificial intelligence and includes critical contributions from the cognitive sciences. Second, it will explain the key innovations behind the recent boost in performance and popularity of language models, including the attention mechanism in transformer language models. Third, it will present key research directions concerning the use of language models in behavioral research and real-world applications and discuss opportunities and challenges for judgment and decision making research.

Novel embeddings improve the prediction of risk perception (15 min)

[Zak Hussain, Rui Mata, & Dirk U. Wulff](#)

We assess whether the classic psychometric paradigm of risk perception can be improved or supplanted by novel approaches relying on language embeddings. To this end, we introduce the Basel Risk Norms, a large data set covering 1,004 distinct sources of risk (e.g., vaccination, nuclear energy, artificial intelligence) and compare the psychometric paradigm against novel text and free-association embeddings in predicting risk perception. We find that an ensemble model combining text and free association rivals the predictive accuracy of the psychometric paradigm, captures additional aspects not accounted for by the classic approach, and has greater range of applicability to real-world text data, such as news headlines. Overall, our results establish the text and free-association embeddings ensemble as a promising new tool for researchers and policymakers to track real-world risk perception.

Clustering decision situations with transformers (15 min)

[Shahar Hechtlinger & Dirk U. Wulff](#)

Traditionally, judgment and decision making research is conducted in the lab, where decision scenarios are meticulously designed. While this approach has many benefits, it also has drawbacks: limited exploratory analysis and low external validity are but two limitations. Transformer language models (e.g., BERT, GPT-4) present an intriguing avenue for exploratory analysis of real-life decision situations (e.g., choosing a career, separating from a life partner), which rarely conform to the sterile environment of lab experiments. However, behavioral scientists often lack the technical background to use such models in research. Here we evaluate transformer-based clustering algorithms aimed at grouping naturally occurring decision situations. Ultimately, this approach can open up new directions for studying judgment and decision-making using state-of-the-art natural language processing, and form the basis for an accessible clustering tool applicable to different domains of human behavior.

TUESDAY 22ND AUGUST 13:15 – 14:45

Using cognitive psychology to understand GPT-3 (15 min)

Marcel Binz & Eric Schulz

We study GPT-3, a recent large language model, using tools from cognitive psychology. More specifically, we assess GPT-3's decision-making, information search, deliberation, and causal reasoning abilities on a battery of canonical experiments from the literature. We find that much of GPT-3's behavior is impressive: it solves vignette-based tasks similarly or better than human subjects, is able to make decent decisions from descriptions, outperforms humans in a multi-armed bandit task, and shows signatures of model-based reinforcement learning. Yet we also find that small perturbations to vignette-based tasks can lead GPT-3 vastly astray, that it shows no signatures of directed exploration, and that it fails miserably in a causal reasoning task. Taken together, these results enrich our understanding of current large language models and pave the way for future investigations using tools from cognitive psychology to study increasingly capable and opaque artificial agents.

Corrupted by Algorithms? How AI-generated and Human-written Advice Shape (Dis)honesty (15 min)

Margarita Leib, Nils Köbis, Rainer Michael Rilke, Marloes Hagens, & Bernd Irlenbusch

Artificial Intelligence (AI) increasingly becomes an indispensable advisor. New ethical concerns arise if AI persuades people to behave dishonestly. In a financially incentivized, pre-registered experiment, we study how AI advice (generated by a Natural-Language-Processing algorithm, GPT-J) affects (dis)honesty, compare it to equivalent human-written advice, and test whether transparency about advice source matters. We find that dishonesty-promoting advice increases dishonesty, whereas honesty-promoting advice does not increase honesty. This is the case for both AI- and human-advice. Algorithmic transparency, a commonly proposed policy to mitigate AI risks, does not affect behavior. The findings mark the first steps towards managing AI advice responsibly.

Discussion (10 min)

Sudeep Bhatia

AUGMENTED DECISION MAKING I

Robo-advisors for the masses? Insights from financial and risk literacy tests of large language models (GPT-3.5) — Paweł Niszczoła

Paweł, Niszczoła, Sami Abbas

State-of-the-art large language models such as GPT-3.5 perform relatively well on demanding tests, that serve as hurdles to legal and medical professions. In this paper, we test the capability of GPT-3.5—a state-of-the-art proprietary large language model—to potentially serve as a robo-advisor for the masses. However, knowing that large language models have difficulties with quantitative reasoning, we set a low hurdle, by testing their performance on a financial literacy and risk literacy test. Of value to both finance and non-finance researchers, we provide a comparison of two variants of GPT-3.5: the most advanced variant of the standard model (Davinci) and a conversational version of the model (ChatGPT), both made available in November 2020. Davinci and ChatGPT perform similarly on the financial literacy test, scoring 63% and 72% against a baseline score of 31%. However, the risk literacy test scores are poor for both Davinci and ChatGPT, precisely achieving that of random choice (25% in this instance). While overall GPT-3.5 presents some literacy, the still high error rate of large language models has a significant potential to mislead laypeople. We speculate how a responsible fine-tuning of large language models by professionals might help calibrate expectations and attenuate misuse.

Trusting Financial Algorithms as a Decision under Ambiguity — Qiong Xia

Qiong Xia, Enrico Diecidue, Ahmed Guecioueur

We study the decision to trust stock price forecasts generated by human or algorithmic analysts as a decision under ambiguity: the accuracy rate of each analyst is unknown to the decision maker (DM). Furthermore, DMs hold different attitudes towards ambiguity about the accuracy rate — human versus algorithmic analysts. Our goal is to measure the difference in attitudes toward ambiguity and thus understand the impact on trust.

We devise an incentivized lab experiment in which subjects choose stock price forecasts generated by human or algorithmic analysts. Subjects' payments are tied to the accuracy rate of their chosen analyst type, which is unknown to them. The experimental setting allows us to elicit the DMs' two components of attitudes toward ambiguity: ambiguity aversion and ambiguity-generated insensitivity (a-insensitivity).

We investigate to what extent both components drive subjects' decision to trust one of the two analysts. We also relate familiarity, knowledge about financial analysts, and financial literacy to the a-insensitivity about the accuracy rate of the analyst. Our analysis contributes to understanding how and why ambiguity attitudes influence the decision of what type of analyst to trust in financial decision-making.

Decision-Making under Algorithmic Recommendation — Ariel Listo

Ariel Listo

Technology companies have revolutionized how individuals make choices. E-commerce sites and streaming services have drastically increased the number of options available to consumers. However, individuals rarely engage in the monumental task of considering every available alternative. As a result, companies rely on algorithmic recommendation systems to surface relevant alternatives. I introduce a model of decision-making under algorithmic recommendation in which recommendation sets are endogenously constructed based on two sources of data: (1) a DM's previous choice and (2) previous choices by individuals of similar observable characteristics. The choice rule follows a two-stage decision problem in which DMs first select the recommended alternative that returns the highest level of utility. If this level of utility is lower than some individual-specific reservation utility, then the DM will choose to incur a "search" cost (i.e., cognitive tax of searching or impatience) and evaluate non-recommended alternatives. The model provides insights into the impact of key parameters, such as the similarity of alternatives recommended compared to previous DM choices or the degree of similarity between the DM and others whose choices are of relevance. These parameters are key predictors of the overall level of homogeneity of choices, with negative welfare implications.

When and Why Implementing Bad AI-Algorithms Feels Worse Than Self-Initiating Them – Bar Shlomo

[Bar Shlomo](#), [Amos Schurr](#), [Simone Moran](#)

Algorithm regulation – i.e., the question of who is authorized to decide which algorithms to implement, portrays a key ethical debate regarding AI. We focus on AI programmers, who play a central role in AI deployment processes. Findings of 4 studies suggest that compared to Low-agency programmers who are instructed which algorithm (deontological or utilitarian) to implement, high agency programmers who freely choose which algorithm to employ, engage in a pre-justification process, and are thus better equipped to overcome cognitive-dissonance when encountering fatal unfavorable outcomes, and feel less responsibility, guilt, and regret about both their programming and the outcome. We further show that this effect has an impact on their future programming decisions – high agency programmers are more likely to stick with their previous programming choices even when they learn that these choices led to fatal outcomes.

“Where is this rating from?” The role of platform type on consumers’ expectations of ratings variance and consumers’ behavior – Lishi Tan

[Lishi Tan](#), [Shankha Basu](#)

Existing research provides conflicting evidence on how people infer high variance in online consumer ratings. While some research found that high rating variance tends to be associated with lower sales, other research found that high rating variance could also have a positive effect on consumers’ decisions. In two studies, we observed a more nuanced role of rating variance on consumers’ behavior and expectations based on the platform where the ratings are displayed. Specifically, we found that, not only do consumers expect to see ratings with lower variance on a company’s own website (vs. a third-party website), but their purchase intentions increase when this expectancy is violated, i.e., when ratings on a company’s own website have high variance. To the best of our knowledge, the present work is one of the first to document expectations consumers have about rating variance and how consumers behave when their expectations about rating variance are contradicted.

Advising the Ill-advised: A Gamified Training Intervention for Improving Decision Making Ability in Young Adults — Gustaf Wadenholt

Gustaf Wadenholt, Linnea Karlsson Wirebring, Sara Stillesjö, Linus Andersson

We present a planned training program aimed at helping young adults learn how to avoid making common mistakes in decision making, e.g. base-rate neglect and the conjunction fallacy. The training is implemented as a mobile phone game with an episodic, interactive story designed to motivate participants to complete the training. A total of ten episodes will be released, evenly spaced, over the course of a month. In the game, the participants are tasked with solving different categories of decision making tasks adapted from the scientific literature. Our intention is to make participants aware of flaws in their reasoning by giving outcome feedback (correct/incorrect) on their performance each trial. Through repeated exposure to similar but not identical problems they will have the opportunity to develop more effective decision making strategies on their own. An active control group will play the same mobile game with various cognitive tasks instead of decision making tasks, e.g. riddles, spelling and memorization tasks. The primary outcome will be changes in performance metrics on the decision making tasks, from pre- to post-training. Additionally, we will collect self-reports of decision making strategies and motivation. Preliminary results from a pilot study will be available at the time of presentation.

DECISION PROCESSES - BROADER PERSPECTIVES

Investigating age-related differences in counterfactual curiosity — Alessandro Bogani

Alessandro Bogani, Katya Tentori, Benjamin Timberlake, Stefania Pighin

In two online experiments (N=402), we investigated age-related differences between younger (age $\leq$ 40 years) and older adults (age $\geq$ 65 years) in terms of non-instrumental counterfactual curiosity (N-ICC), that is, the desire to know the outcomes of forgone choices when such information has no preparatory value.

Participants played independent rounds of a card-drawing game, in which they chose the top card from one of two decks made up of “winning”, “losing” and “neutral” cards (i.e., cards increasing, decreasing, or leaving unaffected an endowment). After making their choice, participants could freely inspect the counterfactual outcome (i.e., turn over the top card of the unselected deck), an action that, because the rounds are independent, is categorizable as N-ICC. In Experiment 1, the decks were identical, offering no reason to prefer either. In Experiment 2, we introduced an element of deliberation by allowing participants to choose between two decks — one riskier, one safer — differing in how extreme the “winning” and “losing” cards were.

The results showed a strong effect of the outcome experienced, with both younger and older adults exhibiting increased N-ICC after negative outcomes, as well as a small effect of age, with older adults being more curious than younger adults after deliberate, meaningful choices.

The big two as dynamic determinants of person impression formation — Johannes Prager

Johannes Prager, Linda McCaughey, Klaus Fiedler

Judgements and decisions from information samples require the integration of available input stimuli to come up with a justified and accurate impression. However, sampled stimuli can differ considerably in their potential to change and settle an impression. In order to predict and test for such diagnosticity effects, we relied on the big two (agency and communion) in combination with valence. Negative communal and positive agentic behaviours are usually more diagnostic than positive communal and negative agentic behaviours (Skowronski & Carlston, 1989).

In a first experiment, participants judged the job fit of applicants to agentic and communal job positions. They were informed by positive and negative, agentic and communal behavioural summaries. We found evidence for higher diagnosticity of negative communion and positive agency behaviours compared to their counterparts, as well as an effect of fit in the big two between behaviour and job profile. In a second experiment, where participants judged the sympathy of psychotherapy patients, we induced different base-rate expectations on either communion or agency in the therapy group. Aside from clear-cut stimulus-diagnosticity effects, we could not confirm expected base-rate effects. Nevertheless, the experiments allowed for a detailed analysis of the dynamic nature of diagnosticity in impression formation.

The role of confidence in regulating pre-decisional information search in sample-based decisions — Linda McCaughey

Linda McCaughey, Johannes Prager, Klaus Fiedler

Decisions are almost always preceded by information search aimed at finding the option that is most preferable. How much information one acquires before making a decision should depend on how sure one wants to be. This aspired confidence level presumably plays an important role in regulating pre-decisional search. To investigate this role, we conducted two experiments (Ntotal=238) aimed at manipulating participants' general confidence, in which they made binary decisions based on self-truncated information and reported their confidence.

In the first experiment, one condition received negatively distorted decision feedback while the other received accurate feedback before completing the remainder of the decisions without any additional feedback. As expected, participants in the distorted-feedback condition collected significantly more information. Mixed-model-analyses indicate that they needed more evidence to reach the same confidence level as the control condition.

The second experiment manipulated the ratio of information cost and payoff across two blocks of 60 decisions each, such that information was relatively more expensive in the second block. Again, mixed-model analyses indicated that in the second block participants needed more evidence to reach similar confidence levels. The adaptivity of this behaviour and its potential will be the focus of the discussion.

Decisions about tattoos and the end of history illusion — Peter Ayton

Peter Ayton

How might how much you think you might change in future years affect decision making for long-term consequences? Quoidbach, et al. (2013) reported evidence that while people acknowledge that their personality may have changed somewhat over the years, they believe that their present personality will change relatively little in the future. People of all ages, it seems, regard now as the moment at which they have finally become who they will be for the rest of their lives – a phenomenon termed the “end of history illusion”.

Here we investigate whether perceived or forecast changeability of personality predicts people's decisions about outcomes with long term consequences. Are people who perceive themselves as more or less changeable in the past or the future more or less likely to decide to get tattoos?

We find tattooed and non-tattooed respondents do not differ on personality trait measures but do differ according to the difference between their reported present and past personality; respondents rating their personality ten years ago more similar to their current personality are more likely to have tattoos. This finding suggests that the decision to have tattoos is influenced by the perception of how much individuals perceive they have changed their personality.

Of mind and motion: The effect of force-feedback perturbations on the processing dynamics in task switching behavior — Judith Herbers

Judith Herbers, Caroline Surrey, Sebastian Pannasch, Peggy Wehner, Stefan Scherbaum

In our everyday life, we must constantly decide which task to perform out of a multitude of possible tasks. While we assume that both environmental factors and cognitive control balancing stability and flexibility are at play, but how they are implemented and interact is still insufficiently explained. We consider perturbations of the choice process and process tracing to be promising tools to investigate more closely how external influences can influence task selection and the dynamics under which the balance of flexibility and stability are established. In the presented research, we implement both in a task switching exercise with a two-stage trial procedure: Participants must first decide which task they want to perform, and only in the second phase the task is executed.

Responses are given with a joystick and brief motoric movements of the joystick (force-feedback perturbations) are applied during the task choice process. This allows novel insights into (i) the effects of different types of perturbations on task choice behavior, (ii) the processing dynamics during task choice and task execution based on the continuous tracking of the joystick movements, and (iii) the circumstances under which task choice processes can be affected by perturbations.

Making a difference: Criticality in groups — Ro'i Zultan

Ro'i Zultan, Tobias Gerstenberg, David Lagnado

How critical are individual members for their group's performance? Prospective responsibility attributions in groups are relevant across many domains and situations, affect retrospective responsibility attributions, and have the potential to influence motivation, performance, and allocations of resources. In this paper, we show that judgments of ex-ante criticality are intimately linked to anticipated ex-post pivotality. We develop several models that differ in how they conceptualize the relationship between criticality and responsibility. To test our models, we analyze criticality judgments in a previous study and two new experiments. We experimentally vary the task structure (disjunctive, conjunctive, and mixed) and the abilities of the group members (which affects their probability of success) in a way that disentangles the different models' predictions. We show that both team structures and the expected probability of success influence criticality judgments. A model that construes criticality as anticipated credit for a positive team outcome best explains participants' judgments. Unlike prior work that has defined criticality as anticipated responsibility for both success and failures, our results suggest that people only consider the possible outcomes in which an individual contributed to their group succeeding but disregard outcomes in which the group fails.

Failures in the exploration/exploitation tradeoff — Chris Harris

Chris Harris

Most human behavior is goal-directed: People act in order to obtain outcomes they find rewarding and avoid outcomes they find aversive (Custers & Aarts, 2010; Thorndike, 1927). Such behavior is oftentimes based on learning by experience: We learn through the choices that we make (Denrell, 2005; Fiedler & Wänke, 2009; Hertwig & Erev, 2009).

A consequence then, is that we constantly face the fundamental tradeoff between exploration and exploitation (Mehlhorn et al., 2015): Do we still have to explore choice alternatives to learn more or do we have sufficient information to exploit a supposedly best option? While we often handle this tradeoff remarkably well, recent research has also shown that under certain conditions (premature) exploitation can lead to the persistence of initial biases (Bai et al., 2022; Harris et al., 2020; Kasper et al., 2023). In this flash talk, I want to present three lines of related research that investigate this process. My aim is to align these lines of research as well as instigate a discussion on factors that might result in failures of navigating the exploration/exploitation tradeoff and how they might factor into the evaluation process.

Decisions from Multidimensional Observations: the Role of Grouping Observations — Maya Leshkowitz

Maya Leshkowitz, Ran R Hassin

How do people make decisions based on complex multidimensional observations? Our research examines two methods of decision-making from experience - using individual observations or groups of observations (corresponding, e.g., to attributes). Three experiments were conducted, where participants evaluated the performance of food delivery services and stock investment portfolios. Results show that individuals tend to group deliveries by the driver and that this grouping subsequently influences their evaluations and choices of delivery companies. Additionally, we establish that grouping stocks into sectors significantly affects individuals' choice of the better-performing portfolio, even though this grouping results in non-optimal decisions. Our findings lead us to propose a theory of decision-making from multidimensional information. We argue that the principles of salience, relevance, and cognitive ease determine whether grouping occurs or not and what dimensions are used for grouping.

Eliciting Accurate Risk Perceptions: The Influence of Conditional Question Framing on Predicting Health Prevention Behaviors — Jeremy D Strueder

Jeremy D Strueder, Jane E Miller, Xianshen Yu, Paul D Windschitl

Many studies find that high perceptions of risk result in preventative behaviors. A key takeaway that has emerged from this line of research is that it is necessary to clarify the specific behavioral context under which respondents are asked to estimate their risk. In practice, this is most often done through the use of conditionals in risk perception questions (e.g., If you don't..., what is your risk of...). In two studies, we investigated whether conditional question-framing can systematically bias the information people consider when estimating their risk, thus resulting in a misrepresentation of the strength of the association between perceived risk and intended prevention behavior. The results of Study 1 showed that people tend to provide higher risk estimates for conditional risk perception questions than for unconditional risk perception questions, even when they are operating under the same set of considerations for both question frames. Study 2 directly tested how question-framing impacts the relationship between perceived risk and intended prevention behavior. Findings from Study 2 suggest that conditional question-framing can indeed lead to an overestimation of the strength of the association between perceived risk and prevention behavior.

What's Complexity Got To Do With It? — Megan M Crawford

Megan M Crawford, George Wright, Courtney Taylor-Browne LÅ«ka, Ian Belton, Aileen Sissons, Ian Hamlin, Fergus Bolger, Alexandrina Vasilichi

This research aims to understand the moderating relationship between group feedback complexity and accuracy on individual opinion change, and trial a novel experimental paradigm within Delphi research called the simulated group response paradigm (SGRP). A series of experiments focused on how structured-group techniques can help improve accuracy beyond just consensus. If techniques can be used that pre-emptively motivate group members towards greater forecasting accuracy, then the value of Delphi and other structured-group techniques could increase for organisations. We used a 2(problem) x 2(accuracy) x 2(complexity) between-subjects group feedback design. The SGRP experimental method consisted of two phases, where an iterative, virtual Delphi session was carried out in Phase 2.

Both the logic-Delphi and foresight-Delphi groups showed a complexity effect, where participants increased confidence in the accuracy of their own responses, after reviewing highly complex group feedback. The groups, however, almost paradoxically also exhibited significant discounting of group feedback, leading to large proportions of continuously inaccurate responses. Opinion change effects were greatest under low uncertainty conditions (logic-Delphi), compared to high uncertainty (foresight-Delphi). Our research begins to show that seemingly inconsequential qualities to group feedback can bias perceptions, and possibly lead practitioners to believe they are more/less accurate than they are.

Mental accounting and locus of control — Maryam Bathaei Javareshk

Maryam Bathaei Javareshk

Most consumers make an effort to constrain their spending, but they are not always successful due to self-control problems. Locus of control—the extent to which individuals see themselves to be in control of the things that happen in their lives—is one of the self-control components. Additionally, mental accounting theory argues that people's spending may be affected by the tendency to mentally sort funds into separate mental accounts and the temptation to spend money may depend on the location of money (e.g., regular income, bonus, saving) in the mental accounting system. Although locus of control has been examined extensively in various attitude and behaviour studies, not much is known about the interaction of different mental accounts and locus of control. The current study aims to address this gap.

A sample of 150 individuals were asked to make decisions about the purchase of luxury vs necessity items. The amount of money available in different accounts was manipulated: One experimental condition ("plenty") involved participants having access to the same, generous amount of money across current account, standard saver account and credit card account. The second condition ("limited") involved a restricted amount of money in the participants' current account. Additionally, locus of control was measured using the Rotter's Locus of Control Scale (1966). The results showed that in both conditions (plenty & limited), participants chose their current accounts over their standard saver and credit card accounts when paying for their shopping items, and there were no significant differences in terms of the internal and external levels of locus of control. In conclusion, although locus of control was not the decisive factor in spending decisions, mental accounting played an important role.

NORMS & COMPLIANCE

How explicit expected value information affects tax compliance decisions and information acquisition — Christoph Kogler

Christoph Kogler, Martin Müller, Jerome Olsen, Erich Kirchler

In a MouselabWEB experiment with 345 participants, we investigated whether different presentations of expected value information in tax compliance decisions increase conformity with classical deterrence models' assumptions. Recording both choice and process data, we compare conditions of verbal explanation only, verbal explanation plus numerical cue, verbal explanation plus visual cue, and a control condition without expected value information. Only when the expected value was presented as a visual cue the option with the higher expected value (i.e., evasion) was chosen more often than the control condition (58.3% vs. 38.4%). Nevertheless, in all experimental conditions individuals were more compliant than predicted by the deterrence model. While we identified differences between conditions in information acquisition patterns and decision times, they do not suggest that one way of presenting expected value information was easier to process than the other or that the main behavioral effect can be explained by higher saliency of the visual cue. These results indicate that individuals' decisions are not predominantly driven by outcome maximization, even when explicit expected value information is provided.

Delayed audit feedback on tax compliance: An eye-tracking study – Žiga Puklavec

Žiga Puklavec, Christoph Kogler, Willem Sleegers

Experiments studying tax behavior often include an audit mechanism, where if the tax is underreported, it can be object to a fine. Usually, the audit outcome is communicated to the participants immediately, while in reality, audits can take a long time. This might pose a threat to external validity. Previous studies found that providing audit feedback with a delay increases compliance, yet the underlying mechanisms for this increase remain unclear. Through 18 consecutive rounds of a tax paying experiment, we manipulated immediate and delayed feedback (between-subject), as well as tax rates, audit probabilities, and fine rates (within-subject). Using eye-tracking, we also assessed participants' information acquisition process in combination with compliance decisions. Results indicated a significant increase in tax compliance over time in the delayed feedback condition compared to the immediate feedback condition. Also, lower tax rates, higher audit probabilities, and higher fine levels led to higher tax compliance. Decision times in the delayed feedback condition were longer, but only if participants evaded tax in the respective round (partially or fully). Different patterns of information acquisition concerning the experimental conditions will be discussed. Overall behavioral patterns of previous studies were confirmed, while also providing insights into underlying mechanisms of compliance decisions.

Repeated Sampling of Group Members and Norm Perception – Thomas K.A. Woiczuk

Thomas Karl Alfred Woiczuk, Rahil Hosseini, Gaël Le Mens

Individual behavior is strongly influenced by beliefs about what others do or think one should do in similar situations. In social contexts, such beliefs or expectations are commonly referred to as group-specific social norms. We study how people form such expectations based on a sample of behaviors by relevant group members. Past research has assumed that such expectations are best explained by what the majority of group members typically do or some other central tendency of the typical behavior of the group members. Based on recent findings from research on impression formation, we hypothesized that instead, the central tendency of the observations (majority or average behavior) would explain said expectations better. Parsing out between these two hypotheses is important in settings where people obtain larger samples of observations about some group members compared to others.

In 4 online studies (N = 2,444), we found that not only participants' expectations, but also their own, consequential behavior was better explained by observation-level central tendencies (average or majority behavior) than by member-level central tendencies (behavior of the majority). These results persist even accounting for memory bias and computational ease. Our findings cast new light on how social influence operates in social environments.

Comprehension in economic games — Lina Koppel

Lina Koppel, David Andersson, Magnus Johannesson, Eirik Strømland, Gustav Tinghög

Researchers across disciplines commonly use economic games to measure prosocial behavior. However, participants' comprehension of these games might be lower than desirable, which complicates interpretation of results. We assessed subject comprehension of the payoff structure of five standard economic games: the Dictator Game, Ultimatum Game, Trust Game, Public Goods Game, and Prisoner's Dilemma. Participants were recruited from two online platforms: Prolific (n = 528) and CloudResearch (using the CloudResearch MTurk toolkit; n = 540). Results indicate that comprehension was far from perfect: misunderstanding ranged from 24% to 70% across games. Study platform was a significant predictor of misunderstanding in three of the games, with greater misunderstanding on Prolific than CloudResearch. Incentivizing the comprehension questions had no significant impact on misunderstanding. The only variable that significantly predicted misunderstanding across all games was numeracy, which was associated with lower misunderstanding. Finally, we found suggestive evidence in exploratory analyses that misunderstanding predicts behavior in some of the games. These findings suggest that misunderstanding may be an important factor in explaining prosocial behavior and that reliance on one-shot games may lead researchers to overestimate the importance of social preferences.

The effectiveness and intragroup dynamics of collective punishment — Qinyu Xiao

Qinyu Xiao, Robert Böhm, Lau Lilleholt, Ingo Zettler

Collective punishment (CP)—punishing an entire group for some members' transgressions—is a common but morally controversial form of punishment institution. Some theorists (e.g., retributivists) find it unacceptable under any circumstances because it does harm to the innocent; others (e.g., consequentialists) consider it justifiable if it can effectively deter transgressions and produce a net benefit.

In this research, we use a novel behavioral paradigm to examine whether CP is effective in reducing group-level dishonesty in a context where individual dishonest behaviors cannot be identified, and whether its effectiveness depends on the opportunity for group members to monitor and discipline each other. In our paradigm, participants play the Mind Game (one classic cheating paradigm) repeatedly in groups. Across four between-participant conditions, we independently manipulate whether there is a CP arrangement (i.e., each group member is punished if group-level dishonesty crosses a threshold) and whether costly peer punishment is possible. We predicted that CP is the most effective in reducing dishonesty when people can engage in peer punishment. We discuss the implications of our results and introduce planned studies to further illuminate the processes that make CP (in)effective.

Citation Penalties Following Sexual Misconduct versus Scientific Fraud Allegations – Giulia Maimone

[Giulia Maimone](#), [Gil Appel](#), [Craig McKenzie](#), [Ayelet Gneezy](#)

Academics use citations to acknowledge the contribution of past work and promote scientific advancement. However, analyzing citation data of 32,025 publications spanning 18 academic fields, we find evidence suggesting citations may also serve as a currency to reward and punish scientists' morality. We find that, relative to controls, the citation rates of scholars accused of sexual misconduct decrease after the accusations become public. Interestingly, this citation penalty is larger than the one incurred by scientists accused of scientific fraud. Our findings suggest that, in addition to serving the purpose of maintaining intellectual integrity and promoting scientific advancement, citation decisions are also driven by scholars' attitudes toward the publications' authors.

Quasi-experimental approach to the analysis of decision making about organ donation of a deceased relative: discussing strengths and limitations of a research program — Jorge S. López

Jorge S. López, María Soria-Oliver, Ruben García Sánchez, María Jesús Martín, José Manuel Martínez

JUSTIFICATION: Family refusal to donate organs from relatives is still a relevant limiting factor of organ transplantation. Previous partial findings of field works should be complemented with new controlled quasi-experimental studies.

OBJECTIVES: To discuss strengths and limitations of a research program that aims to characterize decision making about organ donation of a deceased relative by means of quasi-experimental approach.

THEORETICAL BACKGROUND: Integrated psychosocial model of family decision on organ donation (IMROD), attitude- behavior relationships models, heuristic decision making.

HYPOTHESES AND VARIABLES: Several models of mediation/moderation relationships are postulated to analyze the influence of the perception about the benefits and efficacy of transplantation (secondary independent variable) and attitudes towards donation (main independent variable) on the intention to donate the organs of a deceased relative (dependent variable), including the reasons for the donation of the specific situation and the construct Anticipated regret as a mediating variable and setting different experimental conditions as moderating variables.

MATERIALS AND METHODS. Program of 3 quasi-experimental studies with factorial design of 3x3, 3x3 and 2x2 conditions. Intentional samples of 750, 750 and 722 sex-matched subjects randomly assigned to reach in moderate effect size $\alpha = .05$ and $1-\beta = .80$. Structural equation modelling and mediation/moderation analysis.

Sweden unmasked: descriptive and injunctive norms about COVID-19 face masks — Per Andersson

[Per A. Andersson](#), [Arvid Erlandsson](#), [Daniel Västfjäll](#)

Why did the swedes go unmasked during the COVID-19 pandemic? The issue of face masks was hotly debated during the first months of the pandemic. As many countries adopted recommendations to wear face masks early on, there were few occasions to study the sudden switch in norms that took place. Here we study this switch in Sweden, prior to strict recommendations. In this preregistered study we gave participants a number of scenarios about public transport, presenting them with varying levels of mask use among others. This descriptive norm was then coupled with the injunctive norm of government recommendations to wear or not to wear face masks. Thus, we explored how descriptive and injunctive norms can interact, showing that descriptive norms have strong effects even in the face of clear government recommendations. A fear of informal sanctions for breaking the norm of not wearing masks was also identified as a contributing factor for the low mask usage in Sweden, along with the lack of unambiguous recommendations and government mandates. We discuss these results in relation to policy implications and publicly available data on mask use.

TRUST

Are there dominant response tendencies for social reactions? Trust trumps mistrust - evidence from a Dominant Behavior Measure (DBM) — Maayan Katzir

[Maayan Katzir](#), [Ann-Christin Posten](#)

To investigate whether people have a tendency to trust (vs. mistrust), we developed a novel behavioral paradigm – the Dominant Behavior Measure (DBM). Capitalizing on decades of meticulous research in cognitive psychology (e.g., Stroop paradigm) we designed a task to measure the dominance of reactions in the social realm. In 8 experiments (N = 1160) participants engaged in a series of trust games that involved switching between trusting and mistrusting two trustworthy counterparts and two untrustworthy counterparts, identified by color (while ignoring a distractor name) or by name (when no color was presented). Like other dominant response tendencies, trust is faster, harder to switch to, and more interfering/facilitating than mistrust (E1-E7).

The dominance of trust holds across various social contexts – certainty of counterpart's un/trustworthiness (E4a-E4c), unfamiliar counterparts (E5, E6), counterparts from one's ingroup versus outgroup (E6), and negative framing of trust (E7) – showing that the dominant tendency to trust people (but not non-social objects, E8) is context-independent and robust. We rule out alternative explanations such as asymmetric payoff (E2, E4b), familiarity (E5, E6), and positivity bias (E8). Introducing the novel DBM paradigm, we show that trust dominates mistrust and discuss the DBM's potential to determine dominant responses in manifold social domains.

Trust Across Contexts — Daniel Banki

[Daniel Banki](#), [Daniel Navarro-Martinez](#)

We investigate how well commonly used measures of trust capture trust across different contexts. In a preregistered online study, we measure trust in three different ways: using the trust game, two measures commonly used in surveys, and 14 real-life scenarios (asked hypothetically) that cover many aspects of people's personal and professional lives. We find that the trust game is a poor predictor of how people behave in real-life scenarios. Survey measures predict behavior in individual real-life scenarios better, and their accuracy increases further when predicting a person's average behavior across the situations. As a further demonstration that trust is context-dependent, we compare two culturally distinct countries – the US and Japan – using our measures. We find that Americans are more trusting according to survey measures and real-life scenarios – but less trusting if we base this comparison on the trust game instead. Taken together, our results suggest that not all measures of trust are created equal, and researchers need to think carefully about the measures of trust that are best suited to the contexts they are interested in.

Deontologists are not always trusted over utilitarians: Revisiting Inferences of Trustworthiness from Moral Judgments — Subramanya Prasad Chandrashekar

[Subramanya Prasad Chandrashekar](#)

Recent research has looked at how people infer the moral character of others based on how they resolve sacrificial moral dilemmas. Previous studies provide consistent evidence for the prediction that those who endorse outcome-maximizing, utilitarian judgments are disfavored in social dilemmas and are seen as less trustworthy in comparison to those who support harm-rejecting deontological judgments.

However, research investigating this topic has studied a limited set of sacrificial dilemmas and did not test to what extent these effects might be moderated by specific features of the situation described in the sacrificial dilemma (for instance, whether the dilemma involves mortal or non-mortal harm). In the project, we assessed the robustness of previous findings by exploring how trust inference of utilitarian and deontological decision makers is moderated by five different contextual factors (such as whether an action or inaction accomplishes the sacrificial harm), as well as by participants' own moral preferences. While we find some evidence that dilemma features moderate trust perceptions of others, we find a much stronger effect of participants' own moral preference: deontologists favored other deontologists, and utilitarians favored utilitarians.

Trust repair in advice relationships — Ilan Torgovitsky

[Ilan Torgovitsky](#)

Trust is essential for the establishment and maintenance of interpersonal relationships. In advice settings, trust is necessary for decision makers to benefit from the knowledge of advisors, as well as for advisors' long-term reputation. Despite its importance, trust is easily broken. Because maintaining the relationship is beneficial, the repair of trust is crucial. We investigate whether repair actions by the advisor, in the form of demonstrating consistently high performance, can restore violated trust and maintain it over time. In four experiments, we varied the frequency and intentionality of trust violations and measured trust by participants' use of advice and by their ratings of the advisor's trustworthiness. We found that repeated violations and intentional violations significantly reduce trust, but consistent trustworthy behavior by the advisor can restore it to its original level. However, merely displaying effort to perform better increased advisors' perceived trustworthiness but did not affect advice taking. Also, we found that repair actions help maintain restored trust over time, as advice taking remained high even after participants were no longer able to monitor the performance of their advisor. In sum, advisor violations significantly harm trust, but the harm is reparable and advice relationships can survive episodes of trust violation.

Do people have a trust propensity? On the relation between common elicitation methods of trust — Eyal Ert

Eyal Ert, Eliran Halali, Tamar Kugler

Trust is essential to any human interaction. A common assumption in trust research is that behavior is dictated by an individual “trust propensity”, but also by the specific context where it occurs. However, whereas many different trust measures have been developed, their interrelationship has yet to be systematically tested. Only few studies incorporated more than a single trust measure and they yielded mixed results. We conducted an online study that examines the relation between measures while testing the evidence for a “trust-propensity”. The study incorporates different trust measures, both behavioral games and attitudinal self-reports to assess their relation and individual consistency across tasks. The study was run in 3 waves to assess temporal stability. The results show that behavioral measures did not correlate with most attitudinal measures. However, a factor-analysis yielded a single factor, highly loaded on the general trust question (GSS/IVS), which correlated at least partially with all behavioral and attitudinal measures. Furthermore, behavior showed high temporal stability across the 3 waves. Together, the results provide an initial evidence to the potential existence of a “trust propensity factor”, while alluding to the differences and communalities between the different measures of trust.

The Menu of Deception — Valeria Burdea

Despoina Alempaki, Valeria Burdea, Daniel Read, Martijn van den Assem, Dennie van Dolder

In this project, we investigate how a listener's awareness of a speaker's message set affects their interpretation of the speaker's chosen message. In Study 1, we present participants with the scenario of a high-stake prisoner's dilemma with pre-play free-form communication. We find that participants are much less sensitive to differences in the strength of the statements contestants made when they are unaware of other possible statements a contestant could have made compared to when they are presented with the alternatives. In Study 2, we will explore how these findings map to beliefs about peer behaviour and own choices. Participants will play a prisoner's dilemma with one-sided pre-play communication from a sender to a receiver. We will assess how the receiver's awareness of the sender's set of possible alternative statements (including strong, weak, and empty statements) influences: (1) the receiver's beliefs about the sender's likelihood to cooperate and (2) the receiver's own likelihood to cooperate.

Exploring Perceived Trustworthiness and Credibility of User-Generated Video Evidence in the Context of Human Rights Violations: A Mixed-methods Study — Dr. Alice Liefgreen

Dr. Alice Liefgreen

This study presents findings of a mixed-methods study which aimed to understand how lay people develop the notion of trustworthiness in relation to an audio-visual piece of user-generated evidence (UGE) and subsequently rate its trustworthiness, credibility, authenticity, and reliability. Additionally, it profiles the relative importance of certain factors in the formation of these trustworthiness judgments in the context of news reporting. The study adopted a mixed-methods approach, which included both qualitative and quantitative elements and capitalized on previous research on trust in other digital contexts and theoretical models of trust in digital information. The study is the first of its kind to explore questions of trustworthiness and credibility of audio-visual user-generated content, which has gained significant traction in recent years as a means to prove mass human rights violations. The findings of the study have implications for the use of UGE in legal accountability processes for human rights violations and for individuals and organizations that rely on this type of evidence to support their claims.

Trust is a two-way street: Why trusting advisors are more persuasive — Uriel Haran

Uriel Haran, Ori Weisel

Trust is essential for effective collaboration. In advice relationships, decision makers' trust in advisors determines their willingness to follow advice. In five studies (N = 1,597), we find the inverse effect: trust by the advisor affects subsequent advice taking by the decision maker. Participants played a trust game with either a trusting or a distrusting partner and then completed an estimation task with advice sent by the partner. They followed the advice of the trusting partner significantly more than advice from a partner who had distrusted them. We find that decision makers are more sensitive to advisors' trusting behavior than to their own experience of being trusted. Both the perception that trusting advisors provide more accurate advice and the motivation to reciprocate the advisor's trust mediated the effect. Participants estimated that trusting advisors provided accurate advice more frequently than advisors whose behavior signaled distrust. They also rated more highly their motivation to do the advisors good in return for their trust, above and beyond their estimates of the advisor's performance. These results elucidate the dynamics of trust and persuasion in advice relationships and provide insight for advisors who wish to maximize the effectiveness of their input.

The Inter-Group Trust Game: Exploration of Trust Within and Between Non-Unitary Groups —
Tamar Kugler

Tamar Kugler, Eyal Ert, Bohan Ye

We develop and study a trust game played between two groups, which allows for interdependency and conflict both within and between groups. Study 1 compared two within-group profit sharing rules for the trustor. Our results showed that when profits sent from a trustee in reciprocation of trust were allocated in proportion to initial trust investment, trustor group members sent higher amounts to the trustee compared to a setting where profits were allocated equally regardless of initial contribution. Comparison to a standard trust game indicated that rather than free-riding in egalitarian profit sharing conditions, the results were due to increased competition under proportional profit-sharing. Study 2 replicated the results regarding the lack of free-riding from study 1, and also teased apart the effect of a group trustor from the effect of a group trustee, by implementing a design where individual trustors interacted with group trustees. We discuss Implications to group cooperation and trusting behavior.

CONSUMER DECISION MAKING

Consumption Portfolio Management: Very Good Stuff Is Best Enjoyed By Itself — Luxi Shen

Luxi Shen, Chong Yu, Andrew Meyer

When life proceeds as usual, people expect a booming economy to continue growing and a streak shooter to continue hitting. We propose and find that people predict a performer to continue their streak not because life becomes easier (i.e., non-skill factors), but because they perceive the performer has gotten better (skill factors) as long as the performer proceeded as usual (vs. if they deviated). Six preregistered experiments (N=2,995) suggest that predictions of a performer's performance and skill implicitly follow operant learning principles: regular, fixed-ratio reinforcement schedules promote skill improvement, though the nature of the deviation from regularity matters. That is, a break in action both reduces perceived regularity of an action and its likelihood of success through inferred skill change. However, deviations through speeding up differ from those in which people slow down, and deviations in which only one person takes a break (vs. others don't) differs from when everyone takes a break. Further preregistered follow-up studies explore implications for skilled actors and what factors contribute to perception of skill change.

Copycat product labels cause consumer confusion — Martin Schoemann

Piet van de Mosselaar, Martin Schoemann, Sonja Perkovic, Jacob L. Orquin

Copycatting visual features of leading brands and hence causing consumer confusion can result in severe legal consequences for marketers due to trademark infringement. As a result, marketers may copycat other recognizable features, such as third-party-certified labels, because consumers recognize and trust such labels. We show that marketers copycat certified labels, and that copycat labels cause consumer confusion. In Study 1, we examine food product labels and show that copycat labels distribute in non-random ways across assortments of the two dominant retail chains in Denmark. In pre-registered Study 2, we develop a mouse-tracking method for testing consumer confusion caused by copycat labels, and we show that copycat labels often mislead consumers into believing that a product includes a certified label, and even when they are finally not misled, their cursor movements indicate confusion. We thus used their cursor movements to develop a novel trial-based confusion metric that provides a binary classification performance identifying potential copycat labels of $F(\beta=0.5)=.90$ with PPV=.95 and TPR=.75. Our findings point to a new direction for research on (label) copycatting, its consequences for consumers, marketers, and policymakers, and demonstrate how mouse cursor tracking can inform marketing research and practice.

On the Likelihood of Acquiring a Premium Service Under Freemium vs. Paymium: Field and Experimental Evidence — Anna Dorfman

Anna Dorfman, David Ash, Danny Ben-Shahar

The freemium business model, which offers the use of a free-basic service that may later be converted to a paid-premium one, has been widely adopted by online services. More recently, the alternative “paymium” method, which offers the basic service at a small fee, has been gaining popularity. We examine the likelihood of acquiring the premium service under freemium and paymium methods by (a) analyzing real-world data ($N=52,156$) from a large online classified real estate service that changed its sales model from freemium to paymium, and (b) conducting a series of controlled experiments ($N=1,082$) with real monetary incentives. We consistently find a greater likelihood of acquiring the premium service under paymium and premium-only methods, as compared to freemium. We also find that people demand greater compensation for relinquishing a free (vs. non-free) service—beyond the trivial difference in services’ costs. This suggests a potential underlying mechanism—lower willingness to relinquish free (vs. paid) services. Our findings advance the theoretical understanding of the role of zero (vs. non-zero) prices on consumers’ sequential choices and contribute to practical implementation of effective online business methods.

Value Magnitude Dependent Choice and Attention Dynamics — Jingkai Hong

Hong, Jingkai, Mullett, Tim, Zhao, Wenjia

Work with process tracing methods has identified reliable patterns in preferential choice. In recent years this has spurred multiple conventional stochastic choice models or frameworks. While the impact of value difference on the choice frequency randomness predicted by proposed choice models has been documented in laboratory experiments, other properties of a choice set are also receiving considerable attention. In this study, we examine the role of both value difference and overall value magnitude of the alternatives in predicting accuracy, reaction times, and attention patterns in a forced-choice binary decision task. According to diminishing value sensitivity and proposed choice models, the evidence accumulation process with higher-overall value magnitude becomes less sensitive to new information, which causes worse accuracy and longer reaction times. Contrary to discriminability reduction prediction, we find faster reaction times and higher average accuracy in decisions between high-value options; a pattern that is not predicted by either diminishing sensitivity, or more classical evidence accumulation models. Moreover, we simulate dynamics of attention bias over the course of decision-making in models (i.e., aDDM), predicting significantly more biased attention towards chosen option immediately before choice (larger gaze cascade) in high-value trials. However, we find the opposite pattern in eye-tracking data.

The Life you Save (For): Experiences Dominate Goods in Motivating Savings — Siyuan Yin

Siyuan Yin, Grant E. Donnelly, Cait Lamberton, Michael I. Norton

Prior research suggests that experiences motivate consumers to prioritize the present, such that they are more likely to take on debt and show impatience for their sake than they are for material goods. The current research investigates whether this dominance of experiences over goods extends to savings, which requires people to imagine that future and make plans to achieve their goals? If so, why? Across one field study ($N = 93,577$) and seven experiments ($N = 6,363$; six preregistered), consumers report higher saving intentions for experiences (vs. material goods across contexts of initiating saving goals, saving for self-generated goals, tradeoffs between larger, better and smaller, worse saving goals, and protecting savings by drawing less for emergency expenses. Evidence suggests that this effect may be driven by the fact that experiences (vs. goods) more readily activate imagination, prompting the activation of an implementation mindset, which in turn motivates savings.

Supporting this account, moderation studies reveal that consumers can be more motivated to save for material goods when they are encouraged to engage in an implementation mindset, or equally likely to save for experiential and material goods when they have difficulty imagining their saving goals due to unfamiliarity.

So Bad It's Good: When and Why Do People Prefer Bad Options? — Evan Weingarten

Evan Weingarten, Amit Bhattacharjee, Patti Williams

Why do people consume content that they expect to be bad, such as Tommy Wiseau's "The Room" or Rebecca Black's "Friday?" In sixteen preregistered studies (N = 6,162) using both choice and ranking elicitation methods, we demonstrate preferences for badness (i.e., "so-bad-it's-good" content) across multiple domains (e.g., karaoke performances, American Idol auditions). We find that choice of bad options increases for hedonic domains and consumption motives (vs. utilitarian ones) and when consumption costs are low, when there is extremity of badness, and when there is greater entertainment value (i.e., absurdity or humor) expected in a content domain. These preferences held in domains that participants themselves identified to be differentiated in quality rather than taste. Moreover, when consuming and judging images they themselves judged to be so-bad-it's-good or bad in quality, participants' ratings of humor and absurdity positively predicted so-bad-it's-good perceptions. These results suggest distinct sources of consumption utility from bad options.

AUGMENTED DECISION MAKING II

Artificial Intelligence and a Microperspective of Corruption: How Human-AI Collaboration Affects Individuals' Cheating Behavior — Elena Reutskaja

Yan Bai, Elena Reutskaja, Antonino Vaccaro, Daniel Fernandes, Daniel McDuff, Andriy Ivchenko

While many decisions are made in collaboration with other people, previous research demonstrated that collaboration increases dishonesty. We study how cheating is influenced by a type of collaborator: human versus Artificially Intelligent (AI) agent. We evaluate cheating behavior by a person, who interacts with another human or an AI agent in a collaborative setting where rules and joint outcomes are shared by both parties. We conduct five experiments (N=1796, 32940 observations). The results in both lab and online settings support our hypotheses that people cheat more when they collaborate with another human in comparison with an AI because people infer that humans are more inclined to cooperate in cheating than AI. The results hold regardless of whether the AI is operationalized as a simple algorithm, has human embodiment, or can resemble human appearance and behavior. Additionally, we show our findings are counterintuitive to managers who are unaware of the differences between human-AI collaboration versus human-human collaboration regarding reducing cheating behavior in organizations. Together, our research contributes to ethical decision-making in the context of emerging AI technology and suggests that when used in the right way, combining AI-based technology with a human workforce can be used to help reduce corrupt behavior.

The Ethical Risks of Algorithmic Delegation — Nils Köbis

Zoe Rahwan, Tamer Ajaj, Iyad Rahwan, Clara Bersch, Nils Köbis

A growing exists trend to delegate tasks to algorithms, for example smart pricing options on platforms like Airbnb. Yet, algorithms that autonomously act on people's behalf might break legal or ethical rules, even without humans being aware of it, such as the recent evidence of pricing algorithms colluding autonomously. In this project, we test how people's moral preferences shift when they can delegate ethical behavior to algorithms and how the way the algorithms are programmed influences people's moral preferences. We conducted three studies (total N= 1204) that consistently reveal that people lower their moral preferences when they delegate to algorithms.

We also show that the way algorithmic delegates are programmed matters. Comparing three of the most common ways to program algorithms: One group of participants specified the if-then rules for the algorithm to follow (= rule based). Another group chose a data set of incomplete reporting profiles to train the algorithmic delegate (=supervised learning). A third group specified the algorithm's goal, whether it should maximize honesty or profits in the die-rolling task. We find that cheating in the supervised and goal based programming treatment largely exceeds cheating in rule based treatment.

Psychological Determinants of Financial Technology Adoption and Financial Resilience – Sandra Andraszewicz

Sandra Andraszewicz, Adam Charles Roberts, Christoph Hölscher, Léane Wettstein, Désirée Popelka

Ability to deal with risk and uncertainty is one of the key components of human wellbeing. New financial technologies (FinTech) create numerous opportunities, but they can also carry unforeseen risks. Also, with the variety of digital financial products, it is apparent that people differ in how they make use of these technologies. However, it is not well known how individual traits such as personality, financial knowledge, social capital, or culture mediate the link between financial technology adoption and financial resilience. We conducted three large surveys on the general Swiss (N = 2000) and Singaporean (N = 2000) populations and specific group of an e-wallet users in Switzerland (N = 1000) to close this knowledge gap. We tested a theoretical model, in which technology adoption, psychological and financial resilience all influence each other. In contrast to the standard technology adoption models, participants in all samples were more likely to use e-wallets when they found it “suitable” for them, even if they found this payment system more risky than alternative forms of payment. This indicates that using e-wallets is a lifestyle choice. This finding provides important implications for marketers, regulators, and future researchers of the fast-developing scene of FinTech products.

Algorithms and clinical judgement: impact of advice distance, algorithm information, social proof and a visual aid. — Olga Kostopoulou

Olga Kostopoulou, Bence Pálfi, Kavleen Arora

In two online vignette studies with UK GPs as participants, we tested the impact of an unnamed algorithm on clinical judgements. The algorithm calculated the probability that a patient had cancer. We employed a judge-advisor design: in each vignette, GPs first gave their risk estimate and referral inclination; they then received the algorithm's estimate, and finally, they could update their responses if they wished. In Study 1, we tested the impact of algorithm information; in Study 2, we tested the impact of a social proof statement and a bar graph showing the relative contribution of symptoms to algorithmic risk.

The two studies produced consistent results. The more GPs' estimates differed from the algorithm, the more they updated them, in contrast to egocentric advice discounting predictions. Providing information about the algorithm had no impact on updating. The social proof statement increased updating, while the graph had no impact. We detected learning over time: the difference between initial risk estimates and the algorithm reduced over the series of vignettes.

When introducing algorithms to clinical practice, notifying clinicians of their proven usefulness to colleagues could encourage their utilisation. Learning from repeated use of algorithms is promising and should be investigated further.

Is it ok to share others' data? Exploring the propensity to neutralize the giving away of others' data — Susanne Ruckelshausen

Vince Mitchell, Bernadette Kamleitner, Susanne Ruckelshausen

Every person holds information about other people. Therefore, we are not fully in charge of our privacy. Others that hold information about us may share our data too. In other words, privacy is interdependent. Given that most people hold data about others on their technical devices, this interdependence can be a substantial privacy threat. Whether this threat manifests depends on how people react when asked to give away others' data and how they react when their data gets shared by others. Since the giving away of others' data is wide-spread and concerns most people, social norms are prone to play an important role. In this research, we investigate the dynamics around people's moral perceptions of the sharing of others data.

We do so by investigating how and whether people justify the giving away of others data and whether these justifications vary depending on whether they adopt a victim or offender perspective. Drawing on the Theory of Neutralizations, we conduct 3 studies, one qualitative and two quantitative, that assess justifications and vary victim and offender perspectives. Our findings suggest that social norms about the sharing of others' data are lacking, although personal norms mostly condemn the practice.

Cognitive Functioning is Better on Computers than on Smartphones: A Bayesian Multilevel Meta-Analysis — Shir Etgar

Shir Etgar, Niall Bolger

Given the widespread use of computers and smartphones, the question arises whether cognitive functioning differs depending on which device is used. Because previous studies have examined this question using a range of procedures and tasks, it has been difficult to see a clear pattern of results. To rectify this situation, we conducted a Bayesian multilevel meta-analysis of the previous literature. Three levels of analysis were distinguished: participants (N=1138) were nested within studies (N=22) within papers (N=9). Papers and studies were included in the analysis if device use was examined in a randomized design and if actual cognitive performance was assessed. We found an overall effect for device type, such that cognitive functioning was better when assessed on computers than on smartphones. This effect was replicated using a maximum likelihood solution as well. Importantly, we did not find indications of publication bias across varied methods (Egger test, Begg's test, fail-safe-N methods). Device ownership and type of study design (between vs. within) did not moderate this effect. This effect can suggest that the type of device in hand can affect biased thinking, reasoning, and decision-making processes.

The Influence of Variations in Risk on the Prediction of Car Choice by the Technology Acceptance Model — Teresa Roth

Teresa Roth, Peter Ayton

The Technology Acceptance Model (TAM) or its variants (e.g. Venkatesh & Bala, 2008), propose to predict the acceptance of new technologies. Similarly, the affect heuristic (e.g. Slovic et al., 2004), according to which the evaluation of a risky situation is primarily determined by emotion and affect, was also used for the assessment of technologies. TAM variants propose that behavioural intentions are the sole predictor of behaviour. However, the considerations above suggest the influence of

feelings when contemplating the use of technologies in risky situations. Therefore, we tested a TAM adapted to this research context and conducted an online experiment to investigate whether hypothetical business trips with different elements of risk (e.g. route) evoke emotions that influence car choice, i.e., between battery electric vehicles (BEVs) and conventional cars; and consequently the reliability of the TAM's behavioural prediction. We found that participants were willing to use a BEV, but this preference was diminished for higher risk trips. Higher risk was linked to a weaker association between intentions and car choice and in consequence, a lower reliability of the TAM's prediction of car choice. Our interpretation of the results with the affect heuristic implies the influence of emotions in car choice under risk.

CHOICE MODELING II

Predicting human decisions with behavioral theories and machine learning — Ori Plonsky

Ori Plonsky

We present BEAST Gradient Boosting (BEAST-GB), a hybrid model combining behavioral theory and machine learning for predicting human choices under risk and uncertainty. The model achieves superior prediction performance in three large datasets (totaling over 11,000 choice tasks): an open choice prediction competition (CPC18), the largest published dataset of human choice available, and published data recently ensembled from multiple experiments of decisions under risk to compare dozens of choice models. Our results suggest that the model's success is driven by the unique integration of behavioral insights (derived from the model BEAST) within machine learning. Specifically, we demonstrate the importance of incorporating behavioral insights by showing BEAST-GB considerably outperforms theory-free neural networks. We further show that the gains afforded by the use of machine learning in addition to the behavioral model can be substantial, and are particularly large when predicting idiosyncratic context-heavy behavior.

Modeling Choice Behavior in Probabilistic Inferences Tasks using Artificial Intelligence — Andreas Glöckner

Andreas Glöckner

Individuals have a surprisingly high capacity for making decisions quickly and still taking into account a multitude of information. This capability - often referred to as intuition - relies on automatic processes that can be described with neural networks, one prominent implementation of artificial intelligence. Particularly parallel constraint satisfaction (PCS) networks -- a specific type of interactive activation networks -- have been successful in capturing multiple aspects of choice behavior. PCS models include restrictions to neural networks that capture specific features of cognition and reduce the number of free parameters. PCS and other content models of decision making can be evaluated and potentially improved by contrasting them with more general implementations of artificial intelligence, specifically generic multi-layer (deep learning) neural network models. In a comprehensive analysis of various data sets, the predictive performance of PCS and other content models for decision making is contrasted with that of a generic neural network model. It is shown that - at least for some of the data-set - the performance of PCS is already close to the upper bound estimation provided by the generic neural network models. Implications for further model developments in the field are briefly discussed.

The Importance of Complex Models in Decision Making Research: An Empirical Analysis using BEAST — Or David Agassi

Or David Agassi, Ori Plonsky

Through the years, numerous models have been developed to capture human decision-making. While classical models with similar assumptions are frequently favored, there is no guarantee they provide the best accounts of behavior. Here, we demonstrate the potential pitfalls of disregarding complex models in the field of decision-making research. To do so, we evaluate BEAST, a simulation-based model that has demonstrated extraordinary predictive capabilities in diverse settings, but was excluded from a recent large-scale comparison of models due to its complexity. Our evaluation of the model's performance on a large collection of experiments of decisions under risk shows it provides excellent predictions in some domains. We further show how BEAST can be adapted to increase its predictive power in contextualized settings.

Our results accentuate the model's robustness and versatility, making it relevant in a wide range of scenarios. More importantly, the findings underscore the importance of considering a more inclusive approach toward complex models to the development of more accurate models, and deepen the understanding of the psychological mechanisms underlying human decision making behavior.

An affect-modulated Instance Based Learning model for multi-armed bandit problems, applied to the Iowa Gambling Task — Gabor Ruzsa

Gabor Ruzsa

We have developed an affect-modulated Instance Based Learning (IBL) model of risky choice behavior in multi-armed bandit problems, applicable to the Iowa Gambling Task (IGT). Instances are encoded as [monetary outcome; affect value] pairs, affective valuations reflecting the direction and the extent to which observed outcomes differ from their subjective expected values.

We have considered two pathways of affective influence. First, outcomes which induced strong positive or negative affect at their occurrence are better preserved in memory, hence over time they become over-weighted in the representation of monetary values. Second, an excess of positive over negative emotions associated with a choice option, arising from better-than-expected past outcomes, can serve as a signal of exploration value.

Our model is structurally similar to the Outcome-Representation Learning (ORL) model by Haines, Vassileva, & Ahn (2018), even though its learning component is instance- rather than reinforcement-based. Furthermore, using three additional model parameters, it incorporates affective influences to individuals' choice behavior.

We have used hierarchical Bayesian methods, in addition to Regularized Maximum Likelihood estimation, to calibrate our model on a public data set (n=504) of IGT performance. Compared with the ORL, our model exhibits improved fit, albeit at the cost of increased complexity.

Modeling Carbon Footprint Estimates of food items after administering a Simple Seeding Procedure — Arndt Bröder

Arndt Bröder, David Izydorczyk

"Seeding the knowledge base" has been proposed by Brown and Siegler (1993) for improving the estimation of unknown quantities. In this procedure, actual criterion values of a sample of items from a domain (the seeding items) are provided to participants which results in better estimates on average also for new or transfer items from the same domain. The improvements have hitherto been explained by a broad theoretical framework. In this case study, we investigate post-seeding judgments with a cognitive modeling approach. Using data from a seeding study in which $N = 127$ participants estimated (and improved) the carbon footprints of various food items, we model the final judgments by (a) a linear rule combining certain ad-hoc cues, (b) an exemplar model, and (c) the hybrid model RulEx-J which takes both kinds of processes into account. We find considerable interindividual differences in estimation strategies and better predictions of the estimates by the hybrid model taking both kinds of processes into account. Furthermore, analyzing seed items and transfer items separately, the former seem to evoke more exemplar-based processing while the latter can be described better by the rule model which makes sense theoretically.

A Novel Approach for Generating Sampling Distributions for Cognitive Modeling — Stephen B. Broomell

Stephen B. Broomell, Sabina J. Sloman

Unlike models derived from statistical theory, models derived from psychological theory often have unknown estimation properties. Unfortunately, there are few tools available to researchers to anticipate how the properties of a data set will affect the accuracy and interpretability of the resultant parameter estimates, especially in the presence of parameter interactions. We fill this gap in the literature by developing and testing a flexible method for generating approximate sampling distributions for a general class of psychological models. We present a novel numerical framework that quickly generates accurate multivariate sampling distributions for the parameters of psychological models of dichotomous outcomes, a predominant form for choice models. We also provide tools for using these sampling distributions to specifically quantify (a) estimation precision, (b) dependencies between parameters, and (c) statistical significance of differences between estimates from a null hypothesis. Finally, this approach is computationally quicker than other available methods for simulating parameter distributions, allowing researchers to use this method to improve experimental designs to achieve specific model estimation and testing goals.

SUSTAINABILITY

Over-harvesting like there is no tomorrow: Evidence from dilemma-free common pool games — Jan K. Woike

Jan K. Woike, Sebastian Hafenbraädl

Do participants believe that framing effects are mistakes? We examined whether participants believe that frames used in typical attribute framing tasks should be treated the same, and whether presenting them with arguments for and against the normative principle of description invariance affects their belief. We found that up to 50% of participants think it is reasonable (or in their best interest) to treat frames differently. Presenting them with an argument in favor of description invariance has virtually no effect on their belief. However, presenting them with an argument in favor of treating frames differently—because the frames leak choice-relevant information—had a small but consistent effect of increasing the percentage of participants who thought it is reasonable to treat frames differently.

Financial-return and environmental-impact information promote ESG investments: Evidence from a large-scale incentivized online-experiment — Marcel Seifert

Marcel Seifert, Katharina Gangl, Florian Spitzer, Simone Haeckl, Alexia Gaudeul, Erich Kirchler, Stefan Palan

Sustainable investments are characterized by considerations about financial returns as well as environmental impact. We investigate how information on both aspects alone and in combination impacts the decision to invest sustainably. Moreover, we test whether letting investors express their sustainability preferences in a more detailed way affects their investment decisions. We run an incentivized online experiment with experienced retail investors and a representative sample of the Austrian population (N = 2,254 in total). We find that information on financial returns and information on environmental impact both stimulate sustainable investments. However, presenting the two types of information in combination yields no greater effect than presenting one of them alone. Furthermore, we find no evidence that investment decisions are affected by whether sustainability preferences are elicited generally or in a more detailed format. Results also show that sustainable investments are positively correlated with investors' biospheric values and their financial literacy.

The influence of implicit and explicit political identify cues on partisans' preference for climate policies: The case of temporal message framings — Mario Herberz

Mario Herberz, Tobias Brosch, Ulf J. J. Hahnel

Message framings can importantly alter individuals' preferences and behavior. Past-framed messages have been suggested to increase conservatives' climate policy support, but replication attempts have remained inconclusive. The present research aims to address this explanatory gap by investigating how implicit identity cues contained in message framings as well as explicit identity cues shape the perceived political orientation of a messenger and subsequent policy support of partisans. Across three experiments (Ntotal= 2012), we found that past (vs. future) framing and conservative (vs. liberal) party affiliation independently contributed to the messenger being perceived as more conservative. Past framing and conservative party affiliation independently increased conservatives' climate policy support while decreasing messenger endorsement by liberals. Moreover, temporal framing effects only emerged when messenger party affiliation was made explicit, suggesting that explicit cues may facilitate the integration of implicit identity cues contained in temporal framings. We discuss the theoretical implications of our integrated account for the observation of partisan effects in general and reassess the potential of temporal framings to reduce the political divide on climate change.

The Social Dilemma of Climate Policy — Simon Columbus

Simon Columbus, Robert Böhm

Institutional solutions are needed to combat climate change. Yet, efficient global institutions may impose costs on local communities. This creates a social dilemma in the choice of climate policies. In this context, citizens may oppose globally efficient policies if they believe that other countries will not adopt similar steps to fight climate change. In a cross-national survey (N = 604, Germany/US), even citizens who were concerned about climate change were reluctant to endorse local policies if they believed that citizens of other countries did not support such policies. Building on this initial evidence, we have developed a new experimental game which models the social dilemma of climate policy. Group members can vote on policies which maximise local or global efficiency. Subsequently, they can make costly contributions to protect the group against income losses.

We use this paradigm to study (a) support for locally costly, but globally efficient policies, (b) the 'dividend of democracy' in climate policy, and (c) the effect of intergroup trust on policy compliance. We anticipate to complete data collection (expected N = 1,600) by the end of February. Insights from this project have the potential to inform interventions to promote support for efficient climate policies.

The tree-hugging decision maker: Restoring decision-making competence through exposure to nature — Fabio Del Missier

Marta Stragà, Wändi Bruine de Bruin, Timo Mäntylä, Irene Florean, Fabio Del Missier

Exposure to nature decreases negative affect, promotes stress recovery, and improves cognitive performance after mental fatigue. Here, we examined the benefits of exposure to nature for decision making. We also sought to address the limitation that restorativeness research has tended to compare hospitable natural environments (lakes, woods) with harsh built environments (industrial areas, streets). In Study 1, participants rated images of 12 natural environments and 12 built environments on perceived restorativeness. Cluster analysis identified five types of environments: hospitable natural (lakes, woods), harsh natural (savannahs, deserts), hospitable built (oldtowns, museums), functional built (airports, commercial areas), and harsh built (industrial areas, streets). While hospitable natural environments showed the greatest perceived restorativeness, hospitable built environments were rated as more restorative than harsh natural ones. In Study 2, we examined whether audiovisual exposure to hospitable natural and hospitable built (vs. harsh built) environments would improve the decision-making competence of fatigued individuals. Compared to pre-exposure, participants' decision-making performance significantly improved after exposure to the hospitable natural environments, worsened after exposure of harsh built ones, and remained constant after exposure to hospitable built environments. These effects were partially mediated by reported fatigue. We will discuss theoretical and practical implications of these findings for decision making.

Explaining climate dividends transparently raises public support for carbon taxation —

Mirjam A. Jenny

Mirjam A. Jenny, Lena Lehrer, Sarah Eitze, Philipp Sprengholz, Mattis Geiger, Lennart Hellmann, Hellen Temme, Cornelia Betsch, Karolina Rütten, Maximilian Kellner

Fuel and carbon taxes can reduce carbon emissions. To increase public support for these taxes, a mechanism to distribute most of the money raised back to the people could be installed. This could reduce economic inequality, as people who emit less carbon, who are typically poorer, receive relatively more money. We experimentally tested different communication formats to improve public support for climate dividends in Germany using representative surveys. We found that simply explaining that on average, climate dividends match people's carbon taxes, increases support. Additionally, stating the low administrative costs and the goal of reducing emissions rather than raising money for the administration further increased support. The study also found that people who profit from the dividends (lower emitters) support the taxes more than those who do not. For climate dividends to increase public support for emission taxes, the mechanisms must be explained in simple terms to the public.

Attribute Ambiguity and Justification in Environmental Decision Making — Nicolò Bertani

Nicolò Bertani, Enrico Diecidue, Anouk Festjens

The environmental consequences of our actions are plagued by uncertainty: their severity, likelihood, and time horizon are deeply ambiguous. These characteristics can be seen as the attributes of environmental prospects. Empirical findings suggested that, when faced with deep uncertainty over the benefits of their actions, individuals might stop acting altogether. However, accountability has been shown to mitigate the effect of inaction in generic social games. It is however unclear what influence ambiguity and accountability have when dealing with real environmental consequences. We devise a laboratory experiment to shed light on this. We compare attitude towards risk and towards ambiguity when choices entail environmental consequences with real incentives. We explore the differential role of attribute ambiguity, as well as the effect of accountability on environmental choices. We operationalize real environmental incentives 1) by offering the participants the possibility to nullify CO₂ carbon credits, 2) by asking them to justify their choices, and 3) by using credits issued from different environmental projects (reforestation vs renewable energy) to capture any differential sensitivity. Understanding environmental choices in the face of uncertain information is key to foster more conscious environmental behavior.

Preferences for energy efficiency when buying houses, and realtors' ability to predict energy efficiency choices — Erik Gråd

Erik Gråd, Jens Rommel, Anna Edenbrandt

In times of energy shortage and high energy prices, energy efficiency has become increasingly important, and increasing energy efficiency of the building stock can help save energy. The housing sector in Sweden (and throughout Europe) consists primarily of older buildings with inadequate energy efficiency. In this study, we investigate, through the use of a discrete choice experiment, which attributes are considered important when making trade-offs in the process of buying a home. We elicit willingness-to-pay for energy efficiency, compare improvements in energy efficiency with a newly renovated kitchen, and compare differences between separate efficiency-improving measures, such as the instalment of solar panels and heat pumps. We furthermore investigate how well sellers and realtors can predict buyers' preferences and decisions. Expert predictions can provide additional insights, shed light on potential null-results and be used jointly with the buyers' choices to enhance this type of predictions and to inform and improve future research design and policy development.

RISK COMMUNICATION

Disclosing Diagnostic Uncertainty during Antibiotic Prescribing — Elisabeth Sievert

Elisabeth Sievert, Robert Böhm, Lars Korn, Ana Paula Santana, Marina Groß, Maxine Pepper, Cornelia Betsch

Antibiotic resistance poses a major threat to global health. Patient expectations to receive inappropriate antibiotic prescriptions contribute to this problem. Effective communication strategies are needed to reduce such expectations and prevent overprescribing. In a pre-registered online experiment with adult participants from the US, we investigated the impact of diagnostic uncertainty (certainty vs. uncertainty) and social externalities of antibiotic use (communicated vs. not communicated) on expectations for antibiotics, trust in the doctor and the doctor's reputation. N = 1951 participants read a vignette describing a hypothetical doctor consultation and then expressed their expectations for antibiotics. A two-way ANOVA revealed that diagnostic uncertainty and the communication of externalities both decreased expectations for antibiotics. The interaction of diagnostic uncertainty and social externalities was not significant. Exploratory analyses revealed that diagnostic uncertainty decreased trust in the doctor and had negative effects on their reputation. Communicating social externalities could buffer these negative effects. On the contrary, when doctors were certain about the diagnosis, communicating the externalities of antibiotic use had detrimental effects on trust in the doctor and their reputation. This study offers insights into chances and potential pitfalls of communication strategies to reduce expectations for antibiotics and to foster prudent use of antibiotics.

Responses to heat risk communication in the UK: Insights from two post-event surveys — Andrea Taylor

Andrea Taylor, Barbara Summers, Samuel Domingos

With the frequency and severity of severe heat events increasing due to climate change, it is critical to promote heat-protection behaviours. Prior research indicates that positive affect towards warm weather may attenuate the effectiveness of heat-protection messaging in countries with temperate climates such as the UK (Lefevre et al., 2015).

However, since this data was gathered in 2013–2015 the UK, has experienced highly publicised severe heat events. We present the findings of two post-event UK surveys conducted within 14 days of the 3rd (July 2019, n=500) and 1st warmest (July 2022, n=550) days on national recorded, assessing reported behavioural response, recollections of heat warnings, subjective perception of the event (atypicality and pleasantness), trust in warnings, trust in warning providers, perception heat-specific and general climate change risk. Regression models indicate that perceived pleasantness of heat is associated with lower engagement in protective behaviour and lower concern about future heat-related climate impacts, with trust in warnings and warning providers also making independent contributions. Our findings indicate that while concern about heat-related climate impact maybe growing, positive affect continues to attenuate willingness to engage in protective behaviours.

Which outcome do people prefer to predict based on a distribution of possible outcomes? — Marie Juanchich

Marie Juanchich, Miroslav Sirota, Karl Halvor Teigen

Past work showed that people tend to associate verbal probabilities (e.g., possible, unlikely) with extreme quantitative outcomes, and to over-estimate the outcomes' probability of occurrence. However, it is not clear (i) how general the preference for extreme outcomes is in verbal probability predictions, (ii) to what extent people over-estimate the probability of their predicted outcome, and (iii) what drives the preference for extreme over moderate outcomes. In four experiments, participants made predictions based on a frequency distribution in two scenarios and provided reasons for their choices. They chose both a probability quantifier and an outcome (e.g., It is that the computer battery will last ... hours). In contrast with our expectation, we found a clear preference for the middle outcome of the distribution; which was preferred because it was the most common, because it was the most likely. Participants preferred to describe what was "likely" or "expected", and that their prediction focused on the modal outcome value of the distribution. Although the modal outcome had a fairly low frequency, participants believed that the outcome was likely and tended to over-estimate the probability of that outcome. Overall, our results indicate that the preference for extreme outcomes is limited to specific verbal probability expressions whereas the over-estimation of the probability of quantitative outcomes may be more general than anticipated and applies to non-extreme values as well.

Affective Motivated Reasoning about a Low-Value Solution to a Threat — Michael Silverstein

Michael Silverstein, Ellen Peters

Affect has multiple functions in decision processes (Peters et al, 2006). Combining the functions with motivated reasoning, affect toward an issue may bias reasoning about solutions (i.e., affective motivated reasoning). In correlational Study 1 early in the COVID-19 pandemic, MTurk participants in the US (N=1284) were asked about their feelings toward the COVID virus and told about a hypothetical, low-value treatment for COVID. They were then asked about their feelings toward the treatment, its effectiveness and riskiness, and use intentions. Participants who felt more negative toward COVID tended to have more optimistic judgments and reported greater likelihood to use the hypothetical treatment. In experimental Study 2, MTurk participants (N=1393) read about a disease and were randomly assigned to one of four conditions: 2 Affect type (integral towards disease v. incidental mood) X 2 Affect valence (positive v. negative). Participants were then asked to make judgments about a low-quality medical solution including use intentions and effectiveness judgments (as a treatment and prophylaxis), risk perceptions, and affective evaluations. Negative affect toward the threat caused more optimistic judgments of the potential solution. Affect toward threats may motivate wanting solutions that avoid the threat and thereby motivate more optimistic evaluations of low-value solutions.

A Psychological Model of Collective Risk Perceptions — Sergio Pirla

Sergio Pirla

Modifying an individual model of decision-making under ambiguity, I present a psychologically-founded model of the transmission and collective emergence of risk perceptions. My model – which can be easily expanded to study the interaction of a wide range of psychological and social processes – yields patterns of probability weighting and additivity that are consistent with past empirical evidence and provides a theoretical explanation to real-life collective attention and information-seeking patterns. Using data from 357 individuals, I present experimental evidence in support of my main building assumptions and demonstrate the empirical validity of my model. To further illustrate how my model can be used to derive novel theoretical predictions, I perform a number of empirically-calibrated simulations to study how information frictions (i.e., limits on the amount and quality of information socially shared) shape the emergence of collective risk perceptions.

When objective information is largely available or when the true probabilities of an event are inconsistent with the agents' attitudes towards ambiguity, reducing the flow of information leads to a slower but more accurate emergence of risk perceptions. My agent-based simulations show that, by focusing on information quality (rather than availability), organizations can more effectively boost the accuracy of their emergent risk perceptions.

How do people perceive the risk of endocrine-disrupting chemicals? — Sonja Perkovic

Aleksandr Pravednikov, Sonja Perkovic, Carl-Johan Lagerkvist

Endocrine disrupting chemicals (EDCs) are chemicals that affect the normal functioning of the endocrine system, which can lead to negative health effects such as infertility, cancer, and obesity. EDCs are everywhere: in foods as pesticides; in packaging and toys as bisphenols and phthalates; and in personal-care products as parabens. Unfortunately, even after learning about EDC risks, many people continue to underestimate them and do nothing to prevent them. Therefore, in order to communicate EDC risks to people in the most effective ways, we must first understand the underlying factors behind individual EDC risk perceptions. As a result, we have conducted a systematic literature review to answer the following research question: How do people perceive the risk of endocrine-disrupting chemicals? Our findings show that EDCs are generally perceived to be risky and that there are eight major factors influencing individual EDC risk perceptions: age, gender, race, presence of children in the household, knowledge of and familiarity with EDCs, education and income, trust in institutions, and health-related concerns. Although our results show clear patterns, more research is needed to fully understand individual EDC risk perceptions and to develop effective strategies for communicating EDC information to people.

Experimental investigations of judgements about combined health risks — Martina Barjaková

Martina Barjaková, Laura Macchi

Many non-communicable diseases result from combinations of risk factors, which sometimes interact to produce risks going beyond their sum, called synergistic risks. For instance, smoking and radon exposure interact synergistically to increase lung cancer risk. Without doubt, how people judge risk combinations is important.

Our first pre-registered online study shows that among university students, combinations of risk factors are not at the forefront of the mind (as opposed to single factors). Students also seem to fail to appreciate that different risk factors may interact differently, with the majority holding the same risk model (e.g., synergistic, additive) for different types of risk factor combinations. Our second randomised study is an experimental test of communication about synergistic and additive risk combinations, and different measurement scales. Scales from previous literature are compared against each other, and so are a novel approach to communication about combined risks using metaphors with a more traditional approach conveying numerical risk information in a graphical format. The standardised risk ratings obtained in the study will be used to examine whether the same risk combinations are judged differently depending on the type of scale and communication. The results will thus be of both theoretical and practical relevance.

Exploring the Emotional Content and Appraisal Characteristics of Risk Communications –
Ayse Ozsari Sahin

Ayse Ozsari Sahin, Adam Harris

Risk communication is an integral part of any emergency response and refers to the real-time exchange of information, advice and ideas between experts, authorities and those facing a threat. These communications are often emotive and convey information about perceived characteristics of risks, such as controllability and certainty. Parallel to the characteristics of risk, emotion research has uncovered six core appraisals underlying emotions. Moreover, emotion-specific appraisals have been shown to influence decisions made under risk. The overlap between risk perception and emotion appraisals suggests that risk communications may trigger appraisals beyond perceived characteristics of risk, specific to emotions. Given their relevance to decision-making, understanding such appraisals may enable more effective risk communications to be designed. We investigated emotional appraisals of risk communications in three studies. Participants (total N= 449) provided emotional appraisal ratings for real risk messages (33 in total) concerning the Covid-19 pandemic or plastic pollution. Results indicated that several consistent emotion appraisals could be identified across these risk communications, including Self-agency, Others-agency and Goal-path obstacles. These findings reveal some stability to the 'emotional personality' of risk communications, whose influence may subsequently be exploited to understand key message properties triggering specific emotions and to improve the efficacy of risk communication.

SOCIAL LEARNING

What you like depends on who you ask: Age-related differences in social information search affect risk preferences — Bettina von Helversen

Bettina von Helversen, Ludwig Danwitz, Jon Gorlo, Jonathan Rolison

Social information can strongly influence preferences and decisions. Here, we propose that selective sampling of social information from one's own age group may reinforce age differences in risk preferences. To test this hypothesis, we asked younger and older participants to rate the likelihood of engaging in risky activities before and after sampling advice from people who had participated in the activity before. Half the advice givers were above 64 years of age and half were below 35 years of age. Additionally, we varied the proportion of positive statements provided by older and younger advice givers: Either older and younger adults provided an equal number of positive and negative statements (equal), older adults provided mainly positive statements and younger negative statements (opos/yneg), or vice versa (oneg/ypos). We found that both age groups tended to sample predominantly opinions of people from their own age group. Further, participants' risk preferences depended on the advice they sampled: in the opos/yneg condition, young participants became more risk averse and older participants more risk seeking while the opposite was true in the oneg/ypos condition. These results suggest that pre-existing differences in risk preferences of social groups could be reinforced by a selective sampling of social information.

Observational Learning of Exploration Exploitation Strategies in Bandit Tasks — Ludwig Danwitz

Ludwig Danwitz, Bettina von Helversen

Situations requiring a trade-off between exploration and exploitation, that is between gathering new information or taking advantage of known options, are ubiquitous. In these tasks, humans frequently have the chance to observe and learn from others solving the same task. In general, two forms of observational learning can be distinguished: direct imitation, i.e., choosing the same options as the other person, and strategy emulation, which in exploration-exploitation tasks implies adjusting the own exploration tendency towards the tendency of the observed strategy.

We aim to disentangle these types of observational learning using a cognitive modeling approach. In two experiments participants performed several nine-armed bandit tasks, either on their own or while seeing the choices of a fictitious agent using either an explorative or an equally successful exploitative strategy. Subject-level parameters for copying and exploration were extracted from the data using a customized model-based reinforcement learning model. Our results indicate that participants use both: direct imitation of the observed agents' choices and emulation of the observed players' inclination to explore. In addition, we find an anecdotal tendency towards copying rather explorative than exploitative agents. These results indicate that people use others' behavior in decisions between exploration and exploitation in various ways.

Social Learning, Metacognition and Behavioral Biases — Andrea Amelio

Andrea Amelio

This paper investigates the impact of social learning on well-documented behavioral biases, in a broad selection of economically relevant tasks. I propose a simple model that incorporates the concept of relative confidence as a regulator of social learning behavior. Relative confidence constitutes the comparison between an agent's assessment of the optimality of (i) her answer, and (ii) another participant's answer. When the correlation between relative confidence and relative performance is positive, social learning will increase aggregate performance and vice versa. Through an online experiment, I document how social learning can both shrink and amplify errors stemming from behavioral biases. This heterogeneity is largely explained by the relative confidence-relative performance correlation, in line with predictions. I also document how individuals' relative confidence impacts their likelihood of learning from others.

The value of control — Moritz Reis

Moritz Reis, Roland Pfister, Katharina Schwarz

Voluntary actions are accompanied by a sense of control over this action and its effects. Forming an appropriate sense of control (or sense of agency) has widespread consequences of individual and societal relevance. Moreover, perceived control might serve as a powerful action motivator, although this critical function has been addressed scarcely so far. Thus, in a preregistered experiment (N = 101 adults), we directly examined the value of control for human agents by allowing participants to choose between financial gain and situational control.

Crucially, a significant share of participants chose to be in control even when this option was less financially rewarding. That is, participants had to be offered 66% of expected asset earnings as an additional reward to make them predictably waive control. In addition to the value of objective decision rights, we also measured subjectively perceived control. Hereby, we found a share of the participants to create an illusory sense of agency in situations of little objective control. These results portray perceived control as a powerful motivator for human behavior that comes with a unique and quantifiable value for individual agents.

Unable to learn? the impact of stereotype congruency and ambiguity attitudes — David Gonzalez-Jimenez

David Gonzalez-Jimenez, Chen Li, Marine Hainguerlot

Stereotypes are simple heuristics that people use when making decisions without full information regarding candidate options. Despite many advances in gender equalities, stereotypes continue to persist. Several studies suggested that the way how people update their beliefs about others' task performance depends on the on the gendered perception of the tasks (Bohren et al., 2019; Coffman et al., 2021; Sarsons, 2019). One reason is that prior stereotypes, may prevent people from effectively learning from new information. In this project, we investigate the impact of prior stereotypes on two factors that affect people's decisions. In this project, we investigate the impact of prior stereotypes on two factors that affect people's decisions. Firstly, we investigate whether people's willingness to search for information depend on their prior stereotypes. Second, we will look at whether having a counter-stereotypical profile affect people's ambiguity attitudes towards the performance of these candidates. We expect people to be more ambiguity averse towards people with counter-stereotypical profiles and perceive more ambiguity regarding their performance. We also expect that, when receiving new information, people's ambiguity attitudes converge at a slower pace to ambiguity neutrality for the counter-stereotypical profiles than the stereotypical ones.

Motivating Low Performers with Input-based Relative Performance Feedback — Rainer Michael Rilke

Rainer Michael Rilke, Victor Van Pelt, Sebastian Lehnert, Christina Guenther

A growing challenge for firms is delivering performance feedback that motivates low-performing employees. Our study examines whether this can be achieved by providing relative performance feedback based on inputs, which is relative performance feedback featuring more controllable performance measures. We predict that input-based relative performance feedback increases feelings of being in control and provides concrete guidance on how low performers can improve. To test our prediction, we conducted a field experiment in a sales department of a software firm. Our findings support our prediction by showing that input-based relative performance feedback increases input-based performance among low performers without affecting high performers. We also find that it increases low performers' contributions to the firm's outputs. Our study adds an important refinement to how relative performance feedback facilitates upward social comparison and has implications for firms seeking to motivate low performers in their workforce.

Learning from other people's social behavior — Sophie Bavard

Sophie Bavard, Erik Stuchly, Arkady Konovalov, Sebastian Gluth

When an individual is facing a choice between two options and chooses one alternative over another, what can we infer from this decision? In comparison to the study of choices, the investigation of how response times impact our learning of other's social preferences has received little attention. Yet, the investigation of choices only cannot allow one to infer the strength of the preference, i.e., the confidence with which the person has made their choice or how likely they are to make the same choice again. To fill this gap, we propose an orthogonal design to investigate the involvement of both choices and response times in learning and inferring other's social preferences. Participants observed other people's decision processes in a Dictator Game, where the demonstrators were asked to choose between different points allocations. Behavioral analyses coupled with computational modelling consistently suggested that (1) response times can be predicted by the distance to an indifference point; (2) observers were able to learn the demonstrators' indifference point when they could observe both their choices and their response times, only their choices, but also only their response times; and (3) a reinforcement learning model was able to match participants' inference in all relevant conditions.

LOSS AVERSION

Can losses lead to more cognitive reflection than gains? — Carlos Rey

Carlos Rey, Tomás Lejarraga, Antoni Rubí-Barceló

Several studies have shown an asymmetry between gains and losses in physiological arousal, neural response, on-task attention, and exploratory search. Our goal was to examine whether losses promote more cognitive effort than equivalent gains in a between-subjects design with 1 factor (treatment) with 2 levels ("gains" and "losses"). In Study 1, participants in the losses condition were endowed with 12€. Both conditions completed 6 tasks assessing 4 different aspects of reflection. Participants could lose (earn) 12 € based on their performance. Analyses revealed no significant differences between conditions in performance or response times. Study 2 had the same design as Study 1, but the experiment was split into two sessions to strengthen participants' sense of loss. Thus, in the first session, participants in the losses (gains) condition took a longer (shorter) unrelated task and received 16€ (4€). In the second session, they completed the same 6 tasks as in Study 1, where they could lose (earn) money based on their performance. Again, results showed no effect of losses on performance. As expected, however, losses led to longer reflection as measured in response times. This effect was more marked in response to syllogisms.

Revealed Randomization with Loss — Yan Xu

Yan Xu, Jason Shachat

This paper studies people's preferences for compound lotteries and examines their correlations with risk attitudes and loss aversion. We developed a new graphic experimental tool wherein a subject allocates a budget of state-dependent probabilities and designs his most preferred lottery. The constructed lottery is theoretically equivalent to a mixture of two fixed lotteries, a safer one and a riskier one. We recovered individual preferences over lottery mixtures with a large set of probability budgets. We also varied the lottery outcomes with all gains, avoidable losses, and unavoidable losses. Around 50% of our participants' choices revealed a preference for lottery mixtures of gains, violating a broad class of models of risk (such as expected utility or disappointment aversion model) that require the betweenness axiom.

Participants were found to be more reluctant towards mixtures involving losses, opting for the safer lottery to avoid losses but choosing the non-mixed risky lottery when losses were unavoidable. The estimated loss aversion and risk attitudes in the loss (not gain) domain explain the treatment patterns, implying a stable preference for lottery mixture across our subjects.

Understanding waste aversion — Ori Weisel

Ori Weisel, Ro'i Zultan, Yaniv Shani

Paying more than one has to is wasteful. To avoid this feeling of wastefulness people may be driven to make suboptimal choices. When the outcome is not under an agent's control, agents may prefer a dominated, wasteful outcome over a more frugal outcome, as long as it eliminates the feeling of wastefulness. In Studies 1 and 2 we measure participants' satisfaction with lottery outcomes to find that subjects are less satisfied with less wasteful outcomes if those outcomes feel wasteful (in comparison to a counterfactual), and that the effect is driven by outcome regret, but not by process regret. In Study 3 we that participants alter their choices (whether to continue or terminate searching for an apartment/valuable resource) based on their awareness of counterfactuals which render the process that leads to their outcome as wasteful or not. Waste aversion leads participants to extend their search beyond what they would do based purely on their preferences and expectations.

The Prestigious Match Effect: The Surprising Cost of Beating Your Biggest Rival — Lior Shem-Tov

Lior Shem-Tov, Guy Hochman

Prestigious matches bring together big rivals with a fierce adversarial relationship. In two studies, we investigated whether these matchups affect teams' performance or if their influence remains purely sentimental. Study 1 shows that people give greater meaning to games between rivals than nonrivals, supporting the Prestigious Match Effect in individuals' perceptions. In Study 2 we used natural data from Europe's five major football leagues, founding a negative, short-termed Prestigious Match Effect. Winning a prestigious match negatively influences the chances of the winning team winning their next game, while losing had a beneficial impact on the teams' performance in the following game.

Nevertheless, this effect is temporary and fades away after just one game. In addition, winning the majority of the prestigious matches in one season is associated with better overall achievements in the season. However, this is likely not a direct result of a positive momentum stemming from the rivalry. Overall, our results shed light on the important role of rivalry in sports and emphasize the contrast between the value people assign to prestigious matches and their actual effect on teams' performance.

The processing of negative numbers and its impact on economic judgment — Hannah Seidler

Hannah Seidler, Sebastian Olschewski, Benjamin Scheibehenne

The processing of numeric information is a prerequisite for many daily decisions. Research in numeric cognition indicates that positive numbers are mentally represented on a compressed mental number line (CMNL), i.e., equal differences between two numerosities are perceived as smaller for greater numerosities than for smaller ones. The CMNL predicts an underestimation of the mean for sequences of positive numbers. This suggests that for a risky lottery, a subjective certainty equivalent below the expected value may not only be due to preferences, such as risk aversion, but also due to perceptual biases in the mental representation of numbers. We tested whether the assumption of a CMNL also applies to negative numbers, partially explaining risk-seeking behavior in the loss domain. Participants sequentially sampled 20 numbers and estimated the sequence's mean. The sequences either contained only positive numbers, only negative numbers, or both and varied in their mean.

Consistent with a CMNL, we found an underestimation for positive and an overestimation for negative sequences, indicating that risk-seeking and risk-averse behavior could partly be explained by biases in number perception. These results offer an alternative explanation to the s-shaped value function described by prospect theory which has previously been explained by risk preferences.

The Role of Status Quo Bias in Judgements of Active Travel Infrastructure Change — Ylva Andersson

Ylva Andersson, Féidhlim McGowan, Shane Timmons, Pete Lunn

In this research we explore status quo bias in the context of local infrastructure change and potential drivers of it. Specifically, our aim is to identify to what extent status quo bias influences individual evaluations of active travel infrastructure as well as to investigate which factors related to status quo bias people seek out for informing their judgements.

We use an experimental design wherein we vary the status of an active travel infrastructure to test whether it is evaluated more positively if it is depicted as status quo compared to when it is described as a proposed change away from an already existing system. We also aim to disentangle potential drivers of status quo bias that may drive judgements through an information-search paradigm. Participants are presented with FAQ headings that are designed to represent plausible causes of a preference to maintain the status quo. By comparing what heading attract most attention in the different conditions, we gain insight into likely causes of status quo bias within an active transport context.

Status Quo Bias and the Decoy Effect: A Comparative Analysis in Choice under Risk — Georgios Gerasimou

Georgios Gerasimou, Miguel Costa-Gomes

Inertia and context-dependent choice effects are well-studied classes of behavioural phenomena. While much is known about these effects in isolation, little is known about whether one of them “dominates” the other when both can potentially be present. Knowledge of any such dominance is relevant for effective choice architecture and descriptive modelling. We initiate this empirical investigation with a between-subjects lab experiment in which each subject made a single decision over two or three money lotteries.

Our experiment was designed to test for dominance between status quo bias and the attraction/asymmetric dominance/decoy effect. We find strong evidence for status quo bias and no evidence for the decoy effect. We also find that status quo bias can be powerful enough so that, at the aggregate level, a fraction of subjects switch from being risk-averse to being risk-seeking.

Survey evidence suggests that this is due to subjects focusing on the maximum possible amount when the risky lottery is the default and on the highest probability of winning the biggest possible reward when there is no default. The observed reversal in risk attitudes is explainable by a large class of Kőszegi-Rabin (2006) reference-dependent preferences.

Habits hinder exploration of new and better alternatives: an experimental study on transportation behavior — Bastián Henríquez-Jara

Georgios Gerasimou, Miguel Costa-Gomes

Commuting choices are usually assumed to follow some version of utility-maximization theory. However, evidence in psychology suggests that this is only half the story. Indeed, most of our behavior seems to be habitual, that is, automatic and independent of the current expected value of our decisions. Here, for the first time we apply this distinction in commuter behavior using a well-established task from the psychological literature. We found that participants whose decisions were driven by habits were less likely to explore new route alternatives once they were included in their choice set, and even when the new alternatives were objectively better than previously chosen ones. Our results suggest that commuting choices are driven by different behavioral systems and open new perspectives in the study of transportation and other real-life decisions.

INEQUALITY

Confident winners of a meritocratic world — Oda Sund

Oda Sund, Kajsa Hansson

How does the experience of success in combination with confidence affect meritocratic beliefs and preferences for redistribution? In a large-scale experiential study, we manipulate both the level of confidence in own performance and the outcome of a competition to provide causal evidence. First, we document that increased confidence has a polarizing effect on meritocratic beliefs: Whereas we find no difference in beliefs between winners and losers in a low-confidence treatment, increasing the level of confidence causes winners to believe that the competition is more likely to be determined by merit compared to losers. We further find that winning the competition significantly decreases the willingness to redistribute, regardless of confidence treatment. Our findings suggest that disagreements about the causes of inequality are most likely to occur among people who expect to succeed, but also that the disparities in beliefs have limited impacts for their preferences for allocation of earnings.

Income inequality and status seeking. An empirical analysis of human mobility data — Yuqi Ye

Yuqi Ye, Lukasz Walasek, Gordon Brown

We examined how income inequality relates to status-seeking behaviour. Specifically, we tested whether people living in areas with high income inequality are less likely to show behaviour associated with low social status. We used large-scale, real-world human mobility data (the SafeGraph dataset) to study visits to 23,914 clothing stores tracked from around 26 million US residents. 100 clothing store brands were divided into 4 tiers representing the social status associated with each brand. Results from negative binomial regression models showed that the association between the county-level visit rates to clothing shops of a given brand tier and the county-level Gini index (income inequality) changed from negative to positive as brand tier status increased: Higher inequality was associated with more (fewer) visits to higher status (lower status) brand stores.

Our research supported, with mobility data, previous findings that people engage in more status seeking behaviour under greater income inequality. It also showed for the first time in offline behavioural data that people tend to avoid “low status” behaviours in regions where income inequality is higher. Furthermore, activities that signify neither “high status” nor “low status”, such as shopping at mid-level clothing brands, were found to be unrelated to income inequality.

Citizens are uniquely insensitive to the income of the richest 1% — Barnabas Szaszi

Barnabas Szaszi, Hooman Habibnia, Josephine Tan, Oliver P. Hauser, Jon M. Jachimowicz

In many developed countries, the growth in economic inequality is primarily driven by rising income shares at the very top of the income distribution. Here, we argue that citizens uniquely underestimate the amount of income held by the top 1% of the population, and provide supporting evidence from five studies in support of this prediction (total N = 78,002), including representative samples, longitudinal data from 40 countries, and pre-registered incentive-compatible experiments. Our studies reveal that this misperception is a uniquely defining feature of the top 1% of the income distribution and does not extend to lower income percentiles. Critically, we find that this effect is driven in part by scope insensitivity, a cognitive bias that reduces how sensitive citizens are to increases in income at higher absolute income levels. While the perception of inequality is often touted as a critical facilitator to more widespread support of redistributive policies, our theory and findings highlight a key challenge to citizens' recognition of inequality when it is concentrated among the top 1%.

We Are Unequal, Yet Still We Trust - Perceived Economic Inequality Does Not Decrease Interpersonal Trust — Lara Többen

Lara Többen, Melvin John, Michaela Wänke, Herbert Bless

What makes us decide to trust others? Within the last decade, inequality research has proposed that economic inequality (henceforth called inequality) decreases interpersonal trust (henceforth trust). While most of these studies use country level data of inequality and trust to make this claim, the underlying theoretical assumption is individuals' perceived inequality reduces their interpersonal trust. However, this has not been empirically studied thus far.

We aimed to fill this research gap, examining the relationship between perceived inequality and trust in one correlational study (N = 1094) as well as three pre-registered experimental studies (total N = 579). In the latter, perceived inequality was manipulated both as a function of an individual's perception of income inequality within Germany as well as experienced inequality between players of a Trust Game. Trust was measured both as an attitude as well as behaviorally. In none of these studies, perceived inequality related to either measure of trust. These findings do therefore not support widely spread assumptions about how economic inequality influences our trust. Further examination is needed if we are to thoroughly understand the effects economic inequality has on individuals.

Redistributive preferences are resistant to information about the income of the richest 1% —
Livia Kosa

Livia Kosa, Hooman Habibnia, Jon Jachimowicz, Barnabas Szaszi

Economic inequality has increased globally, but public support for redistribution policies has not risen proportionally. Prior research suggested that one reason for this might be, that citizens systematically and exclusively underestimate the income of the top 1% of the population (Szaszi et al., 2023). Given that, we hypothesized that correcting these underestimations may enhance support for redistribution. To test this hypothesis, we conducted five pre-registered, online experiments (Total N = 1557), with US citizens, who were asked to estimate the average income of individuals across all quintiles and the top 1% in their county of residence. Afterward, the control group was provided with true, customized information about the average income of each quintile in their respective county, while the treatment group was also informed about the average income of the top 1%. Contrary to our expectations, the results showed that updating people's knowledge about the income held by the top 1% does not increase their preference for redistributive policies. The results hold for the subgroup of participants, who underestimated the top 1%'s income. Our findings indicate that correcting citizens' beliefs about the income of the richest 1% does not impact redistributive preferences.

Who, how much and when: effect of endogenous suggested rules and unequal extraction levels on a common resource game — Giulia Priolo

Giulia Priolo, Laila Nockur

In two studies we investigate the effect of endogenous suggested rules and unequal distribution of maximum extraction levels (MEL) in a common resource game. Participants are randomly assigned to two unequal treatments to play as a High-extraction (MEL = 33%) or a Low-extraction (MEL = 17%) player in a group of four for ten rounds. An equal condition (MEL = 25% for all players) is also implemented. After each round, participants can suggest new MELs for each player by paying a fee and vote to accept it or keep the current MELs. Differences in proposals' characteristics (i.e., amount and direction of change, variance among groups members, mean MEL) are assessed between treatments, High-extraction vs Low-extraction players and study along with acceptance of those. Based on previous literature we expect a less sustainable management of resources (e.g., higher exploitation of the common resource, wider variance distribution of proposed MELs) under unequal (vs equal) treatments. Exploratory analyses are also run to investigate differences in the temporal dimension (i.e., round and resource's size when the suggestion is made) for the first time in the literature.

Affirmative Action: (Within-)group inequality in competitive environments — Jan Hausfeld

Jan Hausfeld, Yvette Lambi, Ankush Asri, Urs Fischbacher

Inequality in wealth, income, opportunities is widespread. One policy tool to "level the playing field" are affirmative actions or quotas. In an online experiment, we investigate how individuals from advantaged (relatively richer) groups and disadvantaged (relatively poorer) groups react to different affirmative action policies (no quota, group-based, endowment-based). More specifically, we explore how the different policies relate to i) willingness to compete for a price, ii) fairness perceptions and choosing a policy for another group, iii) how the different types behave prosocially towards beneficiaries and non-beneficiaries of quotas, iv) groupiness and real-world perception of these programs. (** We just finished running the main study (8*36 subjects) and are still in the data analysis. However, a previous pilot with 8*18 subjects was run which is the basis for the following results.***) We find that both affirmative action and income-based policies increase the willingness to compete of the beneficiaries, i.e. by luck disadvantaged people benefit from affirmative actions. Second, participants tended to choose policies for other groups which also benefitted them (thus, personal experience seem to affect unaffected policy choice). Last, in the pilot we found that people were mainly deducting points from the outgroup and winners.

Asymmetric representation bias: A fundamental cognitive bias in personality research —

David J. Grüning

David J. Grüning, Gaël Le Mens, Clemens M. Lechner, Matthias Bluemke, Klaus Fiedler

Prior research has shown that personality assessments based on self-reports is affected by three problems: Inadequate prediction of behavior, self-other assessment discrepancies, and differences between assessments produced by multiple observers. We propose a unified sampling explanation for these three problems: When people produce self-assessments to answer personality questionnaires, they base them on a sample of their own experiences. However, people tend to select (and repeat) pleasant experiences and to avoid unpleasant experiences, and also seek epistemic insights. Hence, the sample of experiences on which they can rely to form self-assessments is asymmetric. We call this phenomenon asymmetric representation bias (ARB). Asymmetric samples of experiences imply that self-reports are likely to lack predictive validity when the set of situations about which the prediction is made differs from the experienced sample. Moreover, systematic differences in samples of behavior between the self and others can explain self-other differences in personality assessment and divergences in target assessments between multiple observers. Understanding the ARB suggests a methodological solution to these three problems: Supporting participants to symmetrically sample situations in their minds that are generally challenging vs. unchallenging to express a certain personality trait.

CHOICE MODELING II

Tracking the evidence: Linking movement trajectories to sequential sampling theory. —

Oliver Grenke

Oliver Grenke, Martin Schoemann, Stefan Scherbaum

Our main goal is to explore the question of how well parameters extracted from mouse cursor trajectories predict basic parameters of a well-established sequential sampling model, the drift diffusion model (DDM – Ratcliff, 1978). We aim at deepening our understanding about the information inherent in mouse cursor trajectories while simultaneously exploring possibilities to extract, rather than fit, DDM parameters. This approach intends to circumvent model fitting requirements such as a minimal amount of comparable trials.

Participants performed a random dot motion task in which evidence accumulation is well accounted for by sequential sampling theory. A second task was used to contrast the first with a minimal decision process which we use to further inform the extraction of mouse cursor parameters.

Mouse cursor parameters are taken from mouse tracking literature and own developments. A principal component analysis is used to structure the mouse cursor parameters. The main components, in turn, are used in linear regression models to predict the variability of fitted DDM parameters drift rate, threshold separation, and non-decision time.

As-if and process models of labor provision: a case study of the taxi market — Florian Artinger

Florian Artinger

An increase in incentives should increase effort. Yet, this basic assumption was challenged by Camerer et al. (1997). In a seminal study of the New York taxi market, they propose that taxi drivers use an income target. On busy days, where the hourly earnings and incentives are higher, taxi drivers stop early. That is, higher incentives lead to less effort. The taxi market is particularly interesting as taxi drivers can freely allocate their time. This basic effect has been replicated across a number of other labor market. Using data from 11 million taxi trips in Hamburg (Germany), we replicate the common observation that an increase in incentives does not lead to an increase in effort provision. We then compare two classes of models how accurately they predict labor provision of drivers: as-if models in the form of a neoclassical and a reference-dependent utility model compared with psychological process models in the form of heuristics. We show that the behavior of almost all drivers is best predicted by the process models. Key to understanding the results is that the taxi market is characterized by uncertainty where forming rational expectations by anticipating changes in incentives is hardly possible.

Identifying latent emotion (instant utility?) triggers using psychophysiological indicators with an Experience-Based Choice Model in a travel experiment — Bastián Henríquez-Jara

Bastián Henríquez-Jara, Angelo Guevara, Angel Jimenez

Practical Random Utility Maximisation discrete choice models assume rationality. This unrealistic assumption may be relaxed by introducing the ideas of experienced and instant utility proposed by Kahneman et al. (1997). We propose the Experience-Based Choice Model (EBCM), to implement Kahneman's framework as a practical discrete choice model. EBCM is based on the Integrated Choice and Latent Variables framework (Walker & Ben-Akiva, 2002), linking the concept of instant utility with the one of latent emotion (Castro et al., 2020), which can be measured with psycho-physiological indicators (PPIs) that can be collected with portable sensors (Jimenez-Molina et al., 2018). EBCM is capable of: (1) revealing the triggers of instant utility (latent emotion), (2) measuring instant utility using PPIs and (3) estimating choices based on past experiences. In this article we apply the components (1) and (2) of EBCM with data from a real-life travel experiment. Results show that instant utilities (latent emotions) are sensible to the travel mode; velocity; crowding; brightness and noise. In addition, it is shown that the participants kept a biased memory of the emotions they experienced in the trip and that electro-dermal activity and skin temperature turn to be meaningful indicators of instant utility

Memory-Based Decision-Making in Daily Life via a Random Walk Through Memory-Space: The Case for CASES — Achiel Fenneman

Achiel Fenneman, Sarah Malamut, Alan Sanfey

Memory forms a key component of our choices in everyday life. However, the complex nature of experiences in daily life is poorly matched by the need for abstraction required in experimental (laboratory) research. In order to address these limitations we propose a theoretical framework of memory-based decisions based on a synthesis of four key principles underlying the storage and retrieval of episodic memories. At the core of this framework of Cascading Episodic Sampling (or CASES for short) lies our ability to sample prior experiences by performing a random walk through memory-space – that is, by drawing upon memories which are either directly or indirectly related to a novel decision context.

Through three naturalistic experiments we provide empirical evidence to support this framework. In all experiments participants were first trained on a set of stimuli in the form of four unique fantasy animals (“Fennimals”). Participants were next presented with a set of four new Fennimals, each of which was similar to exactly one previously encountered Fennimal. By systematically varying the features of each Fennimal, we provide behavioral evidence that in an unfamiliar decision context participants relied on directly and as well as indirectly related experiences – supporting key predictions of our proposed framework.

An experimental and computational investigation of agreement-based moral decision making — Arthur Le Pargneux

Arthur Le Pargneux, Hossam Zeitoun, Emmanouil Konstantinidis, Nick Chater

Contractualist moral theories hold that morality is primarily about acting according to what would be agreed by rational agents. Despite its widespread influence in moral philosophy, the contractualist tradition has received little attention in empirical work compared to competing normative ethical theories that are primarily concerned with rules (deontology) and consequences (consequentialism). Recent theoretical developments and empirical results suggest that agreement-based considerations and forms of reasoning could play a central role in moral judgment and decision making. However, the computational foundations of moral contractualism have scarcely been explored. In this paper, we present “the dice game”, a new, flexible experimental paradigm to study contractualist moral behavior in an incentivized setting. We then develop a computational model of agreement-based moral decision making that describes participants’ behavior in this task and makes specific trial-wise predictions. We describe its qualitative and quantitative fit to the data and compare its performance to alternative models. Results suggest that agreement-based cognitive processes are required to explain observed behavioral patterns. Contractualist reasoning might be particularly important to manage our everyday social interactions, in which violating tacit agreements often triggers moral reactions. Contractualism could offer a fruitful framework to understand how humans coordinate in morally ambiguous contexts.

Modeling the emergence of context-based choice biases in risky decision-making — Nick Simonsen

Nick Simonsen, Christopher R. Madan

Computational models can provide a deeper understanding of human behavior than descriptive analyses alone, by capturing underlying cognitive mechanisms. We assessed changes in best-fitting computational parameters across learning in a risky choice task (Madan et al., 2021, Psychological Science). Participants incrementally learned about the underlying reward distributions in a decisions-from-experience task. Participants made binary choices between a deterministic and probabilistic option (50/50) of equal expected value. Decisions were made in two reward contexts: high/low-value and gain/loss. A hierarchical drift-diffusion model (DDM) with collapsing bounds was fitted to the data to assess changes across learning. The DDM revealed significantly less evidence was required for making a fixed-outcome choice overall in the loss and low-value decisions compared to the high-value and gain decisions. Evidence accumulated significantly faster for the deterministic option of high-value, low-value, and loss trials (but no significant differences in evidence accumulation on gain trials) with increased learning. Similarly, boundary separation significantly decreased across blocks for all reward contexts. Taken together, this illustrates that as preferences in risky choice become established, less evidence is required to make a choice.

Search Strategy Adaptivity in Large Set Sizes — Thai Q. Cao

Thai Q. Cao, Benjamin Scheibehenne

It is unclear whether or when having many options to choose from worsens or improves humans' decision quality. We attempt to resolve this problem by examining search behaviors. Previous research showed that the total number of searches increased, but the number of searches per option decreased in large set sizes. Using this insight, we will examine how humans would adapt search behavior when the search strategy used in large sets leads to worse outcomes than in small sets. Successful strategic adaptation will prevent choice overload from happening and vice versa. We are also interested in investigating how searches will be adapted after receiving feedback. Prioritizing search width and sacrificing search depth in large sets increase the likelihood of overestimating the value of the selected option. However, it is unclear how search behaviors will be adjusted after receiving an outcome lower than the anticipated value. We will use a search-then-decide multi-armed bandit task to examine participants' search behavior at different set sizes. We will also investigate if providing feedback influences strategic adaptation.

Fluid intelligence predicts model fit of both exemplar-based memory and cue-abstraction and suggests a role for inferior parietal cortex in multiple-cue judgment — Sara Stillesjö

Sara Stillesjö, Linnea Karlsson Wirebring

We are often faced with judgment tasks that require the consideration of several sources of information. For example, a teacher that grades a student's exam question often integrates multiple sources of information (cues: details provided in the answer) into a single criterion dimension (the grade). Ample scientific work has focused on analytical processes and associative memory as two qualitatively distinct ways of addressing such a multiple-cue judgment task, and the inferior parietal cortex (IPC) has been suggested as a key brain region. Here, we combined information from individual differences in fluid intelligence, cognitive modeling and functional magnetic brain imaging to further evaluate the cognitive components of analytical and associative judgments. Participants spontaneously adopted cue-abstraction or exemplar-based memory during training with outcome feedback. Cognitive modeling of test-phase data revealed that model fit of both strategies was associated with fluid intelligence. A whole-brain correlation analysis of brain activation data during test-phase judgments revealed that fluid intelligence correlated with brain activity in IPC both during cue-abstraction and exemplar-based judgments. These findings provide novel evidence for a role of the IPC in multiple-cue judgment, and suggest that judgments with cue-abstraction and exemplar-based memory both draw on fluid intelligence and partly overlapping neural correlates.

INTERTEMPORAL CHOICE II

The language effect on intertemporal decision: A holistic perspective — Yuepei Xu

Yuepei Xu, Cheng-Gang Wu, Yang-Yang Zhang, Zhu-Yuan Liang

Since globalization, using second languages (L2) to make decisions about future is more common than even. In this study, we tested the merged effect of two language features, i.e., the future-time reference (FTR) and L2, on intertemporal decision and its indirect mediators, future orientation, and subjective future perception. As a pair of language with different FTR, English (strong-FTR) have a clear grammatical separation between present and future, while Chinese (weak-FTR) not. Here, Chinese first language (L1) speakers made intertemporal decisions using Chinese (L1) or English (L2). Across three studies (N=1022) and an internal meta-analysis, we found that using a strong-FTR L2 did not change participants' intertemporal preference but reduced their future orientation. These findings highlight a holistic perspective merging language features, outcome variables and measurement methods in the field. We also called for caution to use second language as nudge strategy in intertemporal decision-making.

Directing Deliberation in Intertemporal Choice — Simon T. van Baal

Simon T. van Baal, Emmanouil Konstantinidis, Wenjia Zhao, John Michael, Jakob Hohwy, Lukasz Walasek

Deliberation plays a major role in many decisions, yet little is known about how different ways of deliberating influence decision-making. It is unclear how people's choices change when they make them preferentially, versus when they think about what the best choice (evaluative judgment) is or about what they want themselves to choose (meta-preferential). We examine this question using four intertemporal choice experiments. In these four studies, we test the effect of different types of deliberations on time preferences: we measure people's likelihood of making future-oriented decisions, the magnitude and common delay effect, and their likelihood of choosing dominated options. Behavioural results were analysed using choice proportions and computational models of intertemporal choice, where we fit two commonly used delay discounting models. In the last two studies, we also elicited free-text responses where participants explain how they made their decisions, and we used drift-diffusion models to gain better insight into the underlying decision-making processes.

We find that directed deliberation can attenuate the magnitude effect and the common delay effect. These results show that deliberating a choice in light of different aspects of one's beliefs and preferences about oneself can systematically change people's intertemporal choices.

Intertemporal Prospect Theory — Matthias Weber

Immanuel Lampe, Matthias Weber

Prospect Theory is the most prominent contender of expected utility theory to describe decisions under risk. In contexts without a time dimension, prospect theory is well understood. In intertemporal contexts, however, it is not clear how prospect theory should be applied. In particular, it is unclear whether probabilities should be weighted within time periods or whether the probabilities of present values should be weighted. It is also unclear what parametric specifications of probability-weighting and value functions should be used. We find in a pre-registered experiment on a representative sample that an application of prospect theory weighting probabilities of present values predicts decisions best. Estimated probability weighting functions are very similar to those typically estimated in atemporal settings, while value functions are almost linear with a loss aversion coefficient close to one.

Sign effects in Quasi-Hyperbolic Discounting: Evidence from an incentivized experiment — Jan S. Krause

Jan S. Krause

Quasi-hyperbolic preferences are actively studied in the gain domain, with two recent meta-analyses providing evidence of a sizeable present bias. However, little is known about a possible sign effect for present biases. Even though the sign effect for discount rates is an established and often replicated phenomenon, evidence from incentivized experiments is rare. This paper reports evidence from an incentivized experiment where subjects completed a comprehensive risk task that allows estimating all parameters of a Prospect Theory model and an additional, comprehensive time preference task designed to elicit present biases and discount factors in the gain and loss domain. I introduce a novel approach to measure time preferences on the population and individual level by equating the instantaneous utility function and Prospect Theory value function. The results show a sign effect for both discount rates and present biases. Specifically, I find a present bias for losses but not gains at the population level. On the individual level, many subjects are present-biased in one domain and future-biased in the other domain.

The cross-modal discounting effect in Japan and the US — Shohei Yamamoto

Shohei Yamamoto

We study intertemporal choices where the delayed option is the same as or different from the earlier option. These are uni-modal and cross-modal choices, respectively. Cross-modal comparisons have previously been shown to engender more patience than uni-modal ones, and we compare this “cross-modal discounting effect” between US and Japanese samples. We conduct an experiment in which participants in each country make choices that reveal their indifference point between sooner and later consumer goods, and we measure time preferences using standard Smaller-Sooner vs Larger-Later tasks. Our results suggest that the Japanese participants are more patient than the US participants, that the cross-modal effect exists in both the US and Japanese samples, and that the extent of the cross-modal effect does not differ between them. We conclude that the cross-modal effect is a reliable phenomenon.

Reference-dependent discounting for health and money: evidence from timing prospects — Zhihua Li

Zhihua Li, Arthur E. Attema

Sign-dependence has become a widely established phenomenon in decision making under risk, not only for monetary outcomes but also for other outcomes, e.g. related to health. However, when the prospects involve risk about timing (the time of receipt of outcomes), rather than the outcomes themselves, much less is known about sign-dependence. This study extends discounted utility to incorporate sign-dependence and is the first to test for sign-dependence in timing prospects. Prospects were constructed for two contexts (health and money) and two kinds of outcomes (amount of the outcome and timing of the outcome). For all tasks, a majority of subjects is risk averse for gains and risk seeking for losses, with risk attitudes more mixed for losses. We also observe substantial pessimism with regard to probabilities, and loss aversion for both health and money, and both for risk regarding the outcomes and regarding timing. Therefore, we found substantial empirical support for sign-dependent discounting, both in the monetary and in the health domain. Our results show that psychological biases such as probability weighting and loss aversion are also important, some even more pronounced, when timing is risky.

How Categorization Shapes the Probability Weighting Function — Dan Schley

Dan Schley, Alina Ferecatu, Hang-Yee Chan, Manissa Gunadi

The shape of the probability weighting function is one of the most well-known empirical observations in judgment and decision-making. The tendency to overweight low probability events and underweight high probability events stems from the categorical distinction between "not happening" and "a chance" and "happening.". In this paper, we demonstrate categorical boundaries beyond those at 0% and 100%, implying a function form with greater inflections than the traditional inverse S-shaped PWF. In the decisions-under-risk, risks are predominantly expressed with the use of numbers. Base-10 system of Arabic numerals exhibits a simple nested property: 0 to 9 are nested under sets of 10. Since numbers are used to express risk, and those numbers serve for efficient categorization of the probability space, the PWF may exhibit greater sensitivity when risks cross these left digits (E.g., 10%, 20%, etc.). Using experiments and modeling, we demonstrate that the number of categories differs across contexts and across modes of expression (i.e., numeric risks vs. visual charts). We show that probability sensitivity, and thus the shape of the probability weighting function, depends crucially on these categorical boundaries.

COLLECTIVE INTELLIGENCE

Fast And Slow Crowds: Identifying A Smaller, More Accurate Crowd Using Response Time —
Jacqueline Kurz

Jacqueline Kurz, Emir Efendić*, Caroline Goukens, Philippe Van de Calseide

A reliable way to arrive at accurate answers is to rely on the wisdom of the crowd. Simply put, out of a range of answers, select the one that most people choose. However, crowds can be biased and—for some questions—the majority can be consistently inaccurate. One way to improve this is to, from the larger crowd, select a smaller crowd based on an identifiable cue (e.g., a smaller crowd made up of only experts). However, the cues proposed by previous research are typically intrusive, often requiring large amounts of historical or survey data collection. We investigate whether time taken to answer (i.e., response time) can be used as a cue to create accurate smaller select crowds. In a study with 671 participants, we observed that a smaller select crowd of slower responding individuals provided more accurate answers to multiple-choice general knowledge questions compared to the larger overall crowd and smaller fast select crowd. In particular, we find that slow select crowds perform much better for questions where most people tend to select the wrong answer. Relying on response time—a simple and unobtrusive cue—thus shows to be a promising strategy to accurately tap collective wisdom.

The Mere Audience-Size Effect: When and Why a Large Audience Non-Normatively Inflates the Perceived Competence of Actors — Tian Qiu

Tian Qiu, Jingyi Lu

Information about audience size (e.g., the number of on-site attendees at a match) is ubiquitous in the marketplace. Despite this, audience size's influence on consumer preferences has not been systematically investigated. This research attempts to fill this gap by identifying the mere audience-size effect. Eight studies across diverse domains found that when the audience size results from incidental factors (e.g., a pandemic) and thus is not diagnostic of the performance, consumers still perceive the actor observed by a large (vs. small) audience as more competent (Study 1a). Consequently, consumers commit more (less) resources to an actor with an incidentally large (small) audience than is normally warranted (Studies 1b and 2).

The mere audience-size effect holds among observers, actors and audiences (Study 3). The mere audience-size effect arises because consumers automatically overgeneralize the “a large audience = a competent actor” heuristic (Study 4); however, this effect may be attenuated if consumers are prompted to deliberate on the determinants of audience size (Study 5). Moreover, the mere audience-size effect disappears regarding performance-unrelated competence (Study 6) and reverses when audience size is negatively correlated with actors’ competence (Study 7). This study contributes to research on overgeneralization and heuristic decision making.

The Wisdom of Algorithmic Crowds: Do Decision-Makers Use Crowd-Based Algorithmic Advice? — Joshua Tenn

Joshua Tenn, Dr Janina A Hoffmann

Despite the increasing popularity and accuracy of algorithmic recommendations, decision-makers rarely succeed at calibrating their advice-taking to the accuracy of the algorithm, either under-utilising it relative to their own judgement (algorithm aversion) or showing an over-reliance (algorithm appreciation). Previous research has indicated that advice from ‘select crowds’ of experts are used more frequently and result in higher accuracy, allowing participants to access expertise whilst also reducing the uncertainty experienced when relying on a single advisor. This research aims to test ‘algorithmic crowd’ estimates as a novel technique to improve individuals’ calibration to algorithmic advice. Participants will forecast insurance costs and, after an initial practice phase, will receive algorithmic crowd advice or advice from a single algorithm. In a calibration phase, we will manipulate the level of feedback given on the algorithm’s performance to ascertain whether knowledge of the algorithms’ performance affects calibration. We expect that individuals receiving algorithmic crowd advice and receiving feedback on the algorithms’ performance will be more accurate in a final test phase and weight the advice more heavily.

Communication cost and unopinionated individuals can impede majority consensus in group decision making — Nico Gradwohl

Nico Gradwohl, Ariana Strandburg-Peshkin, Helge Giese

Who is willing to pay communication cost may affect who dominates the limited information that individuals use to establish consensus and promote undemocratic outcomes. We investigated the effect of communication cost on consensus formation in a color coordination task, in which a group of individuals must agree on one color in a limited number of rounds. In this task, 2 individuals were incentivized for one color (majority), and 1 individual for the other (minority). All other individuals were not incentivized for a specific color. Simulations show that when individuals holding a minority opinion are highly motivated, and hence more willing to pay communication costs, they can overturn the numeric majority and determine the consensus outcome. An online experiment shows that although motivated minorities were more likely to communicate, this did not result in dominance over the available information or the consensus outcome. Instead, an increasing number of individuals without a preference for one color was related to lower consensus probability and speed. Communication from those individuals without a preference created noise, and thus may have blurred any minority advantage. Thus, motivated minorities may only gain a foothold if costs are large enough to deter other individuals from communicating.

The follow-the-fast heuristic: A simple strategy for selecting accurate answers in a crowd of answers — Emir Efendic

Emir Efendic, Philippe van de Calseyde

Asking several people the same question often results in opposingly different answers. Think of all the times you received different purchase, vacation, or medical advice. Given a group of individuals, each answering the same set of questions, can we select accurate answers based on a cue that is thought to correlate with accuracy? Knowledge is typically dispersed across group members, and a key challenge is to identify strategies to select accurate answers in a crowd of answers. Here, we test the following strategy: per question, select the answer of the individual who was first to answer. Using responses of 810 game show contestants answering more than 7.800 knowledge questions across 270 episodes of a popular TV show, we demonstrate that such a strategy produces a set of answers that is highly accurate.

Extending these findings to the medical domain, we show that deploying the same strategy when individual physicians diagnose clinical cases generates more accurate medical diagnoses. Overall, these findings provide support for a simple solution for selecting accurate answers in a crowd of answers.

How does Deliberation regulate the Wisdom and Madness of Crowds? A Registered Report — Erik Kommol

Erik Kommol, Christopher Lettl

Understanding the conditions under which human collectives act wisely or mad has been a central focus of behavioral research. While there is a common understanding that overreliance on social information can result in maladaptive herding behavior, there is strong evidence for the cognitive benefits of grouping and interaction. We propose that deliberation regulates the wisdom and madness of crowds under social influence. We are testing whether conditions that inhibit deliberation lead to a higher adaptation to social information and a decrease in accuracy compared to conditions that promote deliberation and if this association is moderated by social information quality. Results from a pilot experiment (n=80) provide preliminary support for our hypotheses. We will test our hypotheses with a larger sample (n=360) in an RCT using cognitive load, time manipulations and instructions to inhibit/ promote deliberation.

The wisdom and madness of interactive crowds with a structured network — Jingyu G. Xi

Jingyu G. Xi, Wataru Toyokawa

Risk and payoff value play essential roles in both human and animal decision making. Typically, high payoff goes side by side with high risk. In the endeavor to optimize the accumulated payoffs, individuals may gradually develop adverse bias under risks and eventually get trapped to the suboptimal choices, the so-called hot stove effect. When introducing social networks into decision making, individuals can escape such traps with conformist social learning strategy and make intelligent unbiased choices. Subsequently, collective intelligence emerges from the individual level with the assistance of social information. However, how diverse social network properties, for instance, the informational efficiency and centralization influence decision-making dynamics on both individual-level and collective-level remains under-discovered.

Our study investigates this question by using an agent-based simulation in a repeated two-armed risky bandit task with varying social network structures from a sparse network to a fully connected network by gradually increasing informational efficiency. The results suggest that an informationally efficient network amplifies both possibilities of collective intelligence and suboptimal informational herding in combined repeated decision-making. Moreover, the mere introduction of the least efficient social network elicit collective intelligence in the population of reinforcement learners.

Getting more wisdom out of the crowd: The case of competence-weighted aggregates —
Enrico Diecidue

Michael Goedde-Menke, Andreas Jacobs, Thomas Langer, Enrico Diecidue

This paper shows that group discussions can serve as an instrument to improve individuals' calibration, which in turn strongly increases the accuracy of competence-weighted, statistical aggregates. We conduct an experiment in which participants estimate quantities and report their self-perceived competence for various judgment problems. In addition, they engage in group discussions with other judges on unrelated judgment tasks. We find that prior to participating in the group discussions, judges' self-perceived competence and their estimation accuracy are poorly aligned, which causes competence weighting to perform worse than prediction markets and simple averaging. However, the information exchange facilitated by the group discussions improved judges' calibration, raising the accuracy of competence-weighted aggregates on subsequent judgment problems to prediction market levels and beyond.

Self-organised collective intelligence with consistently risk averse individuals — Wataru Toyokawa

Wataru Toyokawa

Conventional models of collective intelligence rely on individuals making unbiased, at least partially informed decisions. However, animal decision making through experience may often be biased due to the constraints in information sampling (the hot stove effect). Considering the ubiquity of conformist social learning, a process widely considered to be bias-amplification, it seems paradoxical that improvements in decision-making performance under social influences still prevail in nature. How can animals overcome the potentially suboptimal bias collectively?

Here we show, through model analyses and large-scale interactive behavioural experiments with 585 human subjects, that conformist influence can indeed promote favourable risk taking in repeated experience-based decision making, even though many individuals are systematically biased towards adverse risk aversion. Although strong positive feedback conferred by copying the majority's behaviour could result in unfavourable informational cascades, our differential equation model of collective behavioural dynamics identified a key role for increasing exploration by negative feedback arising when a weak minority influence undermines the inherent behavioural bias. This “collective behavioural rescue”, emerging through coordination of positive and negative feedback, highlights a benefit of collective learning in a broader range of environmental conditions than previously assumed and resolves the ostensible paradox of adaptive collective behavioural flexibility under conformist influences.

The Relationship between Environmental Volatility and Optimal Experience Diversity for Wise Forecasting Crowds — Liza Konovalova

Liza Konovalova, Kariyushi Rao

Employee turnover is commonplace in most organizations. This implies that teams are likely to consist of members with different levels of experience. Research has found such mixed experience to have both negative and positive effect on group performance. The origins of this discrepancy, however, are not clear. We believe the failure to reconcile these findings stems, at least in part, from a failure to consider the interaction between inexperience and the level of volatility in the environment. Specifically, our mechanism predicts that more experienced group members are less responsive to variability in outcomes, which mitigates reactions to mere fluctuations but also mutes their recognition of true change. The opposite is true for novices: as they are more sensitive to outcome variability, they are more likely to detect a true change but can be led astray by fluctuations. This implies that mixed-experience groups enjoy an advantage in volatile environments but are disadvantaged in stable ones. Using computer simulations, we derive a relationship between the level of expertise in a group, their performance, and the volatility of the environment. We provide evidence for model's predictions using experiments and an analysis of security analysts' predictions about firm performance.

RISKY CHOICES IV

Risky Effort — Alice Mason

Alice Mason, Yongming Sun, Nick Simonsen, Christopher Madan, Marcia Spetch, Elliot Ludvig

Decision-making involves weighing up the outcome likelihood, potential rewards, and effort needed. Previous research has focused on the trade-offs between risk and reward or between effort and reward. Here we bridge this gap and examine how risk in effort levels influences choice. With outcome uncertainty, people's risk attitudes follow a fourfold pattern, varying with the domain (gains or losses) and probability (rare or common). Three experiments assessed people's risk attitudes for money, physical effort, and mental effort. With monetary gambles, risk attitudes followed the classic fourfold pattern, and people were risk averse for increases in money (gains). With both physical and mental effort, however, people exhibited a "flipped" fourfold pattern of risk preferences and were instead risk seeking for increases in effort. Overall, these findings indicate that people treat effort as a loss of resources and are more willing to take risks to avoid potentially high levels of effort.

Tempted to take a gamble: Dispositional Greed and Domain-Specific Risk-Taking — Karlijn Hoyer

Karlijn Hoyer, Marcel Zeelenberg, Seger Breugelmans

Following the 2008 global financial crisis, "greedy" bankers were depicted as the culprits of financial decline. They were accused of taking too many unnecessary risks (e.g., Brummer, 2015). Although the link between greed and risk-taking is often suggested, findings to this effect are contradictory, with some studies showing that greed is a predictor of risky decision-making whilst other studies find no relationship. The degree of risk taking turns out to be highly domain-specific. We explored the associations between individual differences in greediness and risk-taking in different domains, using the Dispositional Greed Scale (Seuntjens et al., 2015) and the Domain Specific Risk-Taking scale (Blais & Weber, 2006). In Study 1 (N = 345; M = 19.73; 84.3% female), we explored data from a student sample and found a positive correlation between greed and likelihood to take risks. For the different domains, we found positive correlations between greed and the ethical, financial and health/safety domain, but no significant correlations between greed and the recreational and social domain. Study 2 (N = 389-406, demographics unknown) replicated and expanded these results by looking at the mediating role of temptation. These results shed light on the dynamics of greed.

What's in a Sample? How Sampling Information Affects Epistemic Uncertainty and Risk-Taking — Sebastian Olschewski

Sebastian Olschewski, Benjamin Scheibehenne

In a fundamentally uncertain world, sound information processing is a prerequisite for effective behavior. To the extent that information processing is subject to inevitable cognitive imprecision, decision makers should adapt to this imprecision and to the resulting epistemic uncertainty when taking risks. Here, we test this meta-cognitive ability in two experiments in which participants estimated the means of different number distributions from sequential samples and then bet on their own estimation accuracy. Results show that mean estimates were imprecise and this imprecision increased with a higher SD of the samples. Importantly, participants adapted their risk-taking behavior to this imprecision and hence deviated from the predictions of Bayesian models of epistemic uncertainty. To explain these results, we propose a cognitive model that combines Bayesian estimations of uncertainty and meta-cognitive awareness of imprecision in the integration of numeric information. Modeling results were robust to the inclusion of an empirical measure of participants' perceived sample variability. In sum, we show that estimating epistemic uncertainty is crucial to understand risk-taking behavior in decisions from experience more completely. The results further demonstrate the importance of meta-cognitive awareness as a cognitive building block for adaptive behavior under uncertainty.

What increases risk-taking under sexual arousal? Uncovering the underlying cognitive and affective mechanisms — Nina Ehmann

Nina Ehmann, Bigna Lenggenhager, Wolfgang Gaissmaier

Previous research has shown that sexual arousal increases the willingness to engage in sexual risk-taking behaviour. This includes, for example, having unprotected sexual intercourse with a short-term partner of unknown risk of sexually transmitted infections (STIs). However, the underlying mechanisms by which sexual arousal might influence such risky sexual behaviour have not yet been identified. Crucially, a comprehensive understanding of the decision-making process relevant to sexual risk-taking behaviour is essential for further improving education/prevention programs regarding STIs. Next to this applied relevance, identifying the exact mechanisms under sexual arousal would additionally be of theoretical relevance by adding to a more comprehensive understanding of the role of emotions in decision-making under risk. Here, the literature is particularly sparse on effects of sexual arousal.

Motivated by both applied and theoretical relevance, we develop an evidence-based framework of the cognitive and affective mechanisms potentially at play under sexual arousal. Also, we exactly study these mechanisms both more broadly as well as more deeply, filling significant gaps in the existing research literature. More precisely, in this project we investigate (i) which variables mediate the increase in sexual risk-taking behaviour under sexual arousal, (ii) whether these mechanisms generalise to other risk-domains, and (iii) how specific these findings are to sexual arousal (compared to other states of arousal, here: anger).

Greedy Gamblers? Associations between Dispositional Greed and Problem Gambling in England — Joshua Weller

Joshua Weller, Marcel Zeelenberg, Barbara Summers

Dispositional greed is characterised as the tendency to be unsatisfied with one's current state, coupled with the desire to want more. Although greed may be a driving force for wealth accumulation, it can also relate to increased financial difficulties (Livingston & Lunt, 1992; Seuntjens et al., 2016). We examined greed within the context of gambling, an activity that is enjoyed by millions of individuals worldwide, mostly without adverse consequences. However, for some, gambling may become problematic and lead to devastating financial and psychosocial consequences. In an online survey (N=4855), we tested the degree to which dispositional greed was associated with frequency of gambling, amount spent whilst gambling, and gambling severity. Further, we predicted that these associations would be mediated by self-reported impulsiveness, and gambling-related cognitions that are associated with increased problem gambling behaviour. Supporting our hypotheses, we found that greedy individuals showed higher rates of gambling participation and more negative gambling-related consequences. This relationship was mediated by both one's level of impulsiveness and maladaptive gambling-related cognitions. The current study contributes to the literature linking risk-taking and dispositional greed, and highlights potential mechanisms which may explain this relationship, pointing to both myopic decision-making tendencies and biased cognitions related to gambling.

The ecology of risk: Mapping the risky choices prevalent in modern life — Renato Frey

Renato Frey, Olivia Fischer

What are the risky choices people are confronted with in modern life? This article reports on a set of representative population surveys in Switzerland (N=4380) aimed at mapping the "ecology of risk" before and during the Covid-19 pandemic. Using a preregistered analysis plan with separate discovery and validation phases, we assembled a final inventory consisting of the 102 most common risky choices. The most prevalent choices thereof include whether to accept a new job (N=255), whether to quit one's job (N=227), whether to invest money (N=165), whether to drive a car (N=156), and whether to become self-employed (N=143). This pattern largely persisted for women and men and for different age groups. The 2740 choices covered by our inventory spanned six commonly investigated life domains, with most choices occurring in the occupational domain (28%). Finally, we observed a large stability of risky choices before versus during the Covid-19 pandemic at the domain level. In sum, an inventory of the ecology of risk is indispensable for testing the external validity of the construct of risk preference and may also prove useful for applied settings, by mapping how the risks in the world change spontaneously or in response to global shocks.

Making a risk seem riskier: A new framing effect in risk communication — Xin Liu

Xin Liu, Rui Zheng

There are two frames often used in representing average incidence in risk communication: one case per period (1-in-T frame, e.g., one person dies from disease on average every thirty seconds) or cases per unit of time (N-in-T frame, e.g., two people die from disease on average every minute), which we called risk-time frames. Although the two formats deliver the same time information of risk, they use different magnitudes, thus conveying different psychological meanings, which may influence subjective probabilities and risk perceptions. Three studies were conducted to systematically examine the existence of the risk-time framings effect. We found that people perceived the risk as higher when the risk information is presented in the 1-in-T format rather than the N-in-T format (Study 1–2). Risk level seemed to play a moderation role in the risk-time framing effect, with the perceived risk between the 1-in-T and N-in-T formats being greater at lower risk levels than at higher ones (Study 2). Furthermore, the risk-time frame also influenced behavioral intention through perceived risk (Study 3). The findings have important theoretical and practical implications for risk communication.

Exploring how the affect-gap in risky choice is influenced by day-of-the-week effects. —

Claire Heard

Claire Heard, Virginia Fedrigo, Barbara Fasolo, Matteo Galizzi

Research on day-of-the-week effects identifies that our subjective experiences do fluctuate systematically across weekdays, with different habits, emotions, and events attributed to different days and moods differing across weekdays. With affect/emotion, a common mechanism for decision making effects (or influencer on choice), exploring this fluctuation, and tracing its impact on decision making is extremely important.

We present two studies funded by the P.E.R.I.S.C.O.P.E. grant (S1: Online experiment; S2: eye-tracking experiment) that begin such explorations. Both test the affect-gap in risky choice using vaccine-related scenarios. The affect-gap (Pachur, Hertwig, & Wolkewitz (2013) occurs where affect-rich outcomes attenuate attention to probability information leading to preference reversals.

Our first main aim across both studies is to replicate the existing findings at the aggregate level (i.e., across day/week) confirming the pattern identified above. Study 2, using eye-tracking, will also investigate whether less attention to probability information, and more intra-dimensional comparisons are seen for affect-rich problems.

Our second main, but exploratory, aim across both studies is to uncover whether these results are influenced by day-of-the-week. Study 2 will also investigate whether such differences are mirrored in any differences in the search processes (i.e., measured via eye-tracking), and time spent attending to different aspects of information.

HEURISTICS & BIASES III

Do rational thinkers think too much? — Brian Polin

Brian Polin, Eyal Ben Isaac, Itzhak Aharon

The extensive body of Dual Process Theory literature attributes better life outcomes to type II thinkers with respect to type I thinkers. The former arrive at their decisions through a slow and cognitively taxing process, while the later decide in a fast and frugal manner. In a series of experiments, we test this fast/slow paradigm to determine if type II thinkers engage in cognitively taxing behavior, and think too much, in situations of chance- where deliberation and analysis cannot improve the outcome. We observe that “rational” and “intuitive” are orthogonal, rather than points at opposite ends of one continuum. We also discovered that “rational” tendencies are neutralized in chance situations. High “intuitive” scores in chance situations are associated with more thinking. While bearing no negative consequences on the actual decision outcome, they foster cognitive inefficiency.

The Influence of Price Expectations on the Inaction Inertia Effect — Vanessa Rettkowski

Vanessa Rettkowski, Daniel Lobenwein, Moritz Ingendahl, Michaela Wänke

People are less likely to accept an offer when they are aware of a better, missed offer in the past – that is the inaction inertia effect. This research project investigated if deciding to forego an offer depends on whether people form logical expectations about future prices. As such, we tested whether price expectations moderated or mediated inaction inertia with a sample of German speakers (N = 233) over four inaction inertia scenarios and six experimental conditions. Price expectations were manipulated with a visual graph similar to modern price comparison websites.

Our findings show that price expectations partially mediate the inaction inertia effect – but that they do not moderate it. This provides new insight into the inaction inertia effect – people might form logical expectations about the future price and thus strategically decide to postpone a purchase. However, more valid cues about future price developments did not erase the effect. We discuss directions for future research to test our expectation-based explanation further.

Who Accepts Description Invariance? — Xingyu (Shirley) Liu

Xingyu (Shirley) Liu, Craig R.M. McKenzie, Lim M. Leong, Shlomi Sher

Do participants believe that framing effects are mistakes? We examined whether participants believe that frames used in typical attribute framing tasks should be treated the same, and whether presenting them with arguments for and against the normative principle of description invariance affects their belief. We found that up to 50% of participants think it is reasonable (or in their best interest) to treat frames differently. Presenting them with an argument in favor of description invariance has virtually no effect on their belief. However, presenting them with an argument in favor of treating frames differently—because the frames leak choice-relevant information—had a small but consistent effect of increasing the percentage of participants who thought it is reasonable to treat frames differently.

Testing a parallel coherence-based process of preference updating about options and information distortion when information is presented sequentially — Carolin Häffner

Carolin Häffner, Marc Jekel, Daria Lisovoj

Information distortion (ID) occurs when individuals alter their evaluations of sequentially presented information to match their emerging preferences (Russo, 2015). In the standard statistical analysis, researchers typically show that ID is more pronounced when participants hold a stronger preference for a particular option. We argue that this analysis implies a serial process which does not align with the proposed parallel process (DeKay, 2014). A parallel process implies that changes in preferences and evaluations of information occur simultaneously and impact each other. Our results support the parallel process model, revealing that (1) a reversal in preferences changes the direction of ID (reversal effect), (2) strengthening preferences boost ID (push effect), and (3) weakening preferences reduce ID (pull effect). In addition, we investigated how people distort information in retrospect. While the preference-consistent overall ID effect is the same for currently and previously presented information, we find a cross-over interaction for information congruency. Preference-congruent information (i.e., positive leader and negative trailer information) versus incongruent (i.e., negative leader and positive trailer information) is distorted more strongly for current information, while the relation reverses for previously presented information. Implications of the results are discussed such as the benefit of theory informing the statistical analysis.

Mindware automatization: A possible key to logical intuitions? — Roman Burič

Roman Burič

According to a recent model of mindware automatization, the extent to which the mindware is automatized should play a crucial role in preventing cognitive biases, as it should lead to very easy detection of a conflict between a misleading intuition and the logical structure of a situation and allows reasoners to generate logically correct intuitive responses. To examine the model I measured the mindware automatization as intuitive accuracy in neutral tasks commonly used as a measure of mindware instantiation. Participants also solved two types of conflict reasoning tasks, with response time and confidence used as measures of conflict detection. The results indeed showed the relationship between mindware automatization and most of the conflict detection measures with reasoning accuracy; however, mindware automatization was not related to conflict detection measures, except in one of the detection indices. Mindware automatization also emerged as a significant predictor of reasoning accuracy but lost its predictive power when other variables were added to the model. Overall, the results provide little support for the mindware automatization model. However, whether the relationship between the measures is linear and whether conflict detection is even necessary if the mindware is automatized remain open questions.

Rational choices are more successful than intuitive choices in everyday decision making — Adrian Banks

Adrian Banks, David Gamblin, Iara De Sousa

Dual process theories of reasoning and decision making differ in their explanation of how successful decision making occurs. This study investigates how intuitive and analytic process interact in everyday decision making and which predicts the most successful outcome. Participants (n=105) described a personally meaningful decision that they were currently facing. They rated which option felt the best intuitively and the best rationally. Then, the next day, they rated the outcome. The rational choice was rated as more successful whereas there was no advantage for the intuitive option.

Of the 37% of decisions where the intuitive and rational options were in conflict, 27% finally chose the rational option and 73% chose the intuitive option. This suggests that intuitive choices are not commonly overridden when analytic thought is engaged but rather people acquiesce to their intuitive preference, even though that option is less successful.

Participants also evaluated the decision as if for a friend. Contrary to predictions, choosing for a friend did not improve either rational or intuitive choices. Overall, this study has shown that the most common everyday decision-making pattern is that intuitive responses override analytic responses, but this is unwise as the rational choice is rated as the most successful.

It is the strategy shift that causes longer response times, not the judgment rule — Linus Andersson

Linus Andersson, Sara Stillesjö, Gustaf Wadenholt, Linnea Karlsson Wirebring

A reoccurring argument in dual process/system research is that intuitive System 1 judgments are faster and engage less resources than deliberate System 2 judgments. To investigate these claims, we conducted a within-subjects study involving 34 participants under three conditions, each comprising 10 Linda-like tasks: (a) Uninformed condition, where participants committed the conjunction fallacy; (b) Informed condition, where participants avoided the conjunction fallacy after having received allegorical hints of the task structure; and (c) Similarity condition, where participants made non-normative judgments of similarity. Analyses revealed that (1) Fallacious probability judgments were not generally faster than non-fallacious probability or similarity judgments. However, the first judgments in after having switched conditions (i.e., in the informed and similarity conditions) were slower than subsequent judgments; (2) Skin conductance level (i.e., a measure of autonomic arousal) increased over time, but was not higher during correct probability judgments. Further, heart-rate variability did not differ between conditions. In conclusion, results suggest that (i) it is the strategy shift rather than engaging normative rules (as per System 2 arguments) that causes increased reaction times; and (ii) correct judgments (System 2) do not result in greater autonomic nervous system arousal or strain than incorrect probability or similarity judgments (System 1).

Anchoring the Anchor: Bidirectional Assimilation of Judgments when Items are used as Anchors — David Young

David Young, Adam Harris, Maarten Speekenbrink

Anchoring - the tendency for people's estimates of uncertain numerical quantities to be biased towards recently-encountered candidate values - is a major judgment bias, whose causes remain unclear. Two major theories of anchoring disagree as to whether 'anchoring-by-items' is possible - if a question like "Does a steak cost more or less than £5?" causes anchoring of subsequent estimates of the price of steaks, does a question like "Does a steak cost more or less than a pint of beer?" do so too? Three previous studies have found null anchoring-by-items effects, but we report results from 10 studies of temperature, price and probability judgments (combined $N=2,372$) which show clear evidence for a small ($d=0.2$) anchoring-by-items effect. As hypothesised, we find that not only does anchoring-by-items occur, but both items featured in the comparative question (the steak and pint of beer in the example above) become anchored towards each other. However, contrary to our hypotheses, we do not find that the variability of an item's value distribution determines how much it is anchored, instead, this appears more dependent on an item's value.

Contextual Thinking in Behavioral Anomalies — Junyi Chai

Junyi Chai

People's choices often depend on choice sets they face. In binary choices, people tend to choose the relatively "moderate" option (called the compromise effect) or to choose the dominant option after adding an "asymmetrically dominated" option (called the attraction effect). Such behavior anomalies are irrational seemingly, which invoke constructive models of preferences to explain them. In this paper, we develop a theoretical framework of context-dependent preferences, what we call contextual thinking, that contains two-fold thinking: inferiority aversion and attention. Through formulating the two-fold thinking, the effect of choice sets on choice behaviors can be captured by deliberating perceptions' distortions on dimensions' importance. Meanwhile, it remains the forms of dimensions' value functions unchanged. The unique feature of our theory is extending the bedrock of the classical range-based model by further incorporating the influences of relative position of options. We exploit the appalusive features like elasticity vanishing, proportional thinking, diminishing sensitivity, and loss aversion, which enhance the theory's capacity of explaining behavior anomalies. Our model particularly explains the attraction and compromise effects in a united way.

Reported Percentages Are Biased Measures of Probabilistic Beliefs — David Comerford

David Comerford

Questions that elicit probabilistic beliefs as a percentage chance are widely used. A percentage scale measures a precise statistical concept that ought to be invariant across cultures. Study 1 shows that the percentage scale manifests cultural differences in respondents' willingness to endorse extreme endpoints, which is irreconcilable the percentage scale being a linear measure of respondents' probabilistic beliefs. Study 2 shows that reported percentages more closely resemble subjective likelihood expressed on a 0-100 scale than formal probabilities. Study 3 finds that a frequency format delivers responses that better resemble probabilistic beliefs than do reported percentages. Study 4 demonstrates how the literature has been misled by taking reported percentages at face value. It documents in nationally representative samples from two countries that a purported male / female difference in survival optimism is a mere survey artefact that derives from curvature in the reporting function that maps probabilistic beliefs onto a percentage scale. In sum, these data suggest that reported percentages are better considered likelihood judgments that happen to be reported on a 0-100 scale than formal probabilities. The frequency format has better properties than the percent chance question as a means to capture respondents' probabilistic beliefs.

DECISION PROCESSES

How and how often do people make transformative life decisions? — Shahar Hechtlinger

Shahar Hechtlinger, Ralph Hertwig, Christin Schulze

When making transformative decisions (e.g., emigrating, separating from a life partner, or changing careers), people need to leap into an unknown personal future that they often cannot sample beforehand. Although much is at stake in such life choices, decision-making research has largely overlooked them. We conducted a representative online survey (N = 1,027) to examine the prevalence of transformative decisions and the strategies people use to make them. Using qualitative approaches to data analysis and natural language processing, we found that transformative decisions were something many had personal experience with: 74% of participants considered at least one transformative decision in the last two years, most frequently in the domain of relationships and family, or in the domain of work and career. Our classification revealed that the majority of participants used non-compensatory strategies, with single-reason strategies being the most common class of strategies, followed by lexicographic strategies, action-based strategies, and social-learning strategies. These results suggest that the majority of people do not maximize utility, but rather rely on simpler heuristic mechanisms to make transformative decisions. This research calls into question existing views that people make (and should make) big life decisions by applying a single, complex utility maximization mechanism.

Testing a computational framework for modeling flexible goal-directed choices and valuations — Sebastian Gluth

Sebastian Gluth, Romy Froemer, Amitai Shenhav

Humans can flexibly adjust how they make decisions to arbitrary goals. However, most theories in decision-making focus on predicting one specific choice type (i.e., choosing the best option). Here, we link decision-making and cognitive-control research to test a theory that accounts for flexible adjustments of choice mechanisms to different goals and demands. Our biologically inspired model specifies how different features translate into evidence for the current goal, and how evidence is mapped onto different output structures.

We tested the model in an eye-tracking study in which 44 participants were asked to choose one out of four consumer products or to appraise the entire set, with respect to positive or negative value. The results confirmed our preregistered hypotheses that RT should decrease with the overall value of a set of options in choose-best but increase in choose-worst trials. As predicted, this interaction was absent in appraisal RT, which instead exhibited an inverted-U-shaped pattern. Furthermore, the dependency of an option's dwell time on its value was positive in choose-best, negative in choose-worst trials, and absent when participants appraised entire sets of products. Our findings suggest that cognitive-control processes govern choice and search dynamics by flexibly adjusting them to current goals and demands.

Do we know what we are doing? A multi-method mapping of cognitive strategies and intuitive and analytic thought. — August Collsiöö

August Collsiöö, Peter Juslin, Sarah Ericsson

A very influential conception of intuitive and analytic cognitive processes aligns them with the speed of processing where intuitive thinking is fast and autonomous, whereas analytical thinking is slower and relies heavily on working memory (so called dual-systems theories e.g. Kahneman, 2011; Evans & Stanovich, 2013). Here we juxtapose this perspective with an older conceptualization proposed by Egon Brunswik (1956) – revived and formalized in the recent Precise/Non-precise(PNP)-model (Sundh et al., 2021) – which instead aligns intuitive cognitive processes with roughly Gaussian error distributions and analytical ones with spiked, leptokurtic, judgment error distributions. We reanalyzed multiple-cue judgment data from four experiments (N = 350) to investigate and compare these indexes of intuition vs. analysis in relation to a categorization of participants as either analytic or intuitive based on their own retrospective verbal protocols. The results revealed that whereas process speed was unrelated to whether participants were categorized as intuitive or analytic based on the verbal protocols, the classification from verbal protocols was strongly related to the proportion of judgment errors (the Brunswikian account). These results add to the growing evidence that the endogenous noise in the judgment process is diagnostic of cognitive processes and, particularly, if they are intuitive or analytic.

Intuitive Decision Making Predicts Satisfaction and Happiness with Real-World Choices — Claire Gregory

Claire Gregory, Adrian Banks

We investigated whether System 1 or System 2 within dual-process theory is best for everyday decisions, to address the issue of dual-process research focusing on laboratory tasks and expert populations. A scale was developed to measure whether S1 or S2 was during decision-making. In two experiments, participants made everyday choices and reported decision-making process, satisfaction, happiness, and affect about their decision at two time-points. Exp.1 had participants choose a meal, Exp.2 had participants choose a film. Exp.1 found S1 led to increased Time 1 satisfaction, happiness, and positive affect about the decision, and increased Time 2 satisfaction, happiness, and positive affect. S2 led to increased Time 2 positive affect. Replicating Exp.1's findings, Exp.2 found S1 led to increased Time 1 satisfaction, positive affect, Time 2 happiness with the decision, and higher movie quality ratings. Exp.2 found that S2 led to increased Time 1 happiness and positive affect, and increased Time 2 positive affect. This suggests that S1 is more useful for everyday choices if the goal of the decision-maker is to be happy and satisfied with their choice. This may be because S1 allows decision-makers to access their initial affective responses to options more easily than S2.

Exploring the Relationship between Decision-Making Styles and Implementation Intentions — Ester Nosálová

Ester Nosálová

This research aims to explore the relationship between decision-making styles and implementation intentions and the predictive value of decision-making styles on implementation intentions after accounting for goal characteristics. The sample consists of 158 Slovak grammar school pupils whose goal is to go to university. A questionnaire was administered to determine decision-making styles, goal characteristics and implementation intentions. A significant relationship was found between implementation intentions and the rational and avoidant decision-making styles. However, decision-making styles did not explain any significant amount of variance in implementation intentions after accounting for goal characteristics.

Mapping Beliefs about Uncertainty: Development and Validation of the Uncertainty Mindset — Alina Gerlach

Federico Magni, Alina Gerlach, Julian Pfrombeck, Sara Zaniboni, Laura Elaine Strittmatter, Gudela Grote

Research on uncertainty regulation is shifting away from the conceptualization of uncertainty as something negative to avoid towards a more comprehensive view of uncertainty as something that can sometimes be desirable and, therefore, be regulated in both directions – increased or decreased. We advance uncertainty mindset a relevant individual difference state of perceived uncertainty which interacts with individuals' uncertainty preferences to affect whether individuals decide whether to reduce or increase uncertainty. We build on existing mindset and uncertainty research to establish uncertainty mindset as a construct. In two studies (N = 820), we examine its dimensionality in terms threat-opportunity and fixed-malleable dimensions in general life and work. We develop and validate item scales to assess these dimensions of the uncertainty mindset and test their relationships to relevant outcomes. Results indicate that more positive mindsets are linked to desirable outcomes, such as increased wellbeing and reduced stress.

The overall magnitude influences choice behaviors and eye-movement in both perceptual and value-based decisions — Chih-Chung Ting

Chih-Chung Ting, Sebastian Gluth

A growing literature has shown that people tend to make a faster decision when choosing between high-intensity/attractive options than choosing between less-intensity/attractive options. Yet, it remains unclear how and whether the overall magnitude is involved in the information process and influences other choice behaviors beyond response time (RT). Using a within-subject experiment (N=60), in which the overall sum of option values (OV), value difference, and choice domains were independently manipulated, we found negative effects of OV on RT, as well as positive effects on confidence ratings, in both perceptual and value-based decisions. In contrast, the effect of OV on accuracy rate was task-dependent. On the other hand, we found that the allocation and the duration of the last fixation were significantly related to the OV across choice domains. Importantly, OV adjusted the final fixation bias (i.e., the tendency of choosing the final fixated) in the value-based decisions only: the tendency of choosing the final fixated snack was significantly higher in the low OV condition compared to the high OV condition. Together, our results suggest that overall magnitude affects choice behaviors beyond RT, but no common mechanism can account for the magnitude effect in different choice domains.

The meta-analysis on the relationships among multiple numeric competencies and financial outcomes. — Angelika Olszewska

Angelika Olszewska, Agata Sobkow, Joanna Smieja, Jakub Michalik, lukasz Sumlinski, Julia Mazur, Dafina Petrova, Rocio Garcia-Retamero, Jakub Traczyk

In this study, we provide a systematic review of the literature (1997 – 2022) on the role of multiple numeric competencies in financial decision making. The idea of multiple numeric competencies was introduced by Peters and Bjälkebring (2015) and consists of objective numeracy (general ability to understand and use probabilistic concepts), subjective numeracy (math-related self-efficacy), and approximate numeracy (related to intuitive number senses). In our systematic review, we included financial decision outcomes in both paradigmatic tasks (e.g., monetary lotteries) and real-life decisions (e.g., incomes, savings, or financial well-being). We hypothesized (<https://osf.io/52637>) that there will be positive correlations between multiple numeric competencies and better financial decision outcomes. However, the strength of these relationships may vary for different types of numeracy and outcomes (e.g., in paradigmatic tasks vs. in real-life). We have searched scientific databases: PsychInfo, Web of Science, Scopus, and more informal sources (such as Google Scholar). After removing duplicates, we screened more than 3000 abstracts and reviewed 449 full texts. 146 studies were qualified for the data extraction. During the presentation, I will present the results and details of the methodology.

Is there a difference between text and speech in judgment and choice? — Anton Kühberger

Anton Kühberger

We investigate the effect of presenting a judgment or choice situation in text or speech. We did a series of studies with the following basic design: the instruction is presented by text, or by speech, delivered by an auditory file. Text versus speech was manipulated between participants, and judgments and choices were compared between groups. This basic design was used for a variety of classic problems of the JDM literature. In 7 studies we compared the results of the contrast between text and speech for (1) lottery pairs, (2) classic heuristics-and-biases tasks; (3) the Linda task; (4) counterfactual reasoning; (5) risky choice framing, and the Ellsberg task; (6) the effect of framing for judgments of truth; and (7) the Cognitive Reflection Test. There was no difference between writing and speech in all those experiments for judgments and choices. These findings point to a blind spot in theorizing: Given that the results of judgments and decision processes are identical for written and spoken language, theories that are based on processes that are only possible with text cannot explain judgments and choices in the auditory domain.

Telling more about telling more than we can know: Inferences from mouse tracking and introspective reports — Michael Schulte-Mecklenbeck

Schulte-Mecklenbeck, Michael, Rima-Maria Rahal

We study cognitive processes during decision making via mousetracking in repeated choices. We test the relation between preference strength, decision conflict as well as the mapping of prototypical mouse trajectories onto judgements of conflict and difficulty.

Our experiment consists of two parts: an online phase and a laboratory phase. In the online phase, participants will answer questions in five different task types: 1) risky choice, 2) moral dilemmas, 3) social value orientation, 4) inequality aversion, and 5) animal classification. In the second, laboratory phase, we will record the relationship between preference strength and decision conflict inferred from mouse trajectories in five different task types: 1) risky choices, 2) trolley problem dilemma, 3) moral reallocation of money, 4) social dilemmas, and 5) animal classification. During the laboratory phase, we will additionally ask for introspective self-reports during a replay phase of the decision and mouse-cursor trajectories for each decision, where participants either see their own choice and trajectory or pre-recorded prototypical trajectories.

Bringing together these different data sources will allow us to evaluate the quality of the movement-process mapping and to determine whether there is a relationship between participants' introspective self-reports and their actual mouse movements.

BEHAVIOR CHANGE

The joint impact of verbal nudges and experienced outcomes: A choice prediction competition — Ido Erev

Ido Erev, Yefim Roth

Experimental studies are presented that examine the joint impact of verbal nudges and experience. In each trial, the participants must choose between two or three keys on the computer screen. Each key is associated with a payoff distribution, and the trial's payoff is a random draw from the distribution of the selected key. To maximize earning, the participants can rely on two sources of information: A verbal nudge presented on one of the keys, and feedback provided after each choice. The results reveal large initial sensitivity to the nudge that declines, but not always not illuminated, by experience. When the nudge promoted the expected value maximizing option, the effect size was around 0.25. The impact of the nudge promoting the risk prospect was eliminated by experience. Importantly, most of the long-term effect appear to reflect the behavior of a small minority (about 5%) that trusted the nudges in all trials. Comparison of alternative models highlight the potential of the assumption that people tend to rely on small samples of new experiences, and also on old past memories that are triggered by the nudges. A new choice prediction competition that focuses on the impact of verbal nudges is described.

Habit replacement: Evidence from two field studies — Duc Quang Pham

Pham Quang Duc, Jeeva Somasundaram, Laura Zimmermann

Across two field studies, we investigate whether consumers who are monetarily incentivized to substitute an undesirable habit (social media/smartphone overuse) with a desirable one (learning a language or walking), are more successful in reducing the undesirable habit, than consumers who are only incentivized to reduce the undesirable habit. We find evidence supporting the habit replacement intervention.

Evaluating the Effectiveness of Nudges in Academia and Public Policy — Maximilian Maier

Maximilian Maier, František Bartoš, Nichola Raihani, David R. Shanks, T.D Stanley, Eric-Jan Wagenmakers, Adam J.L. Harris

Nudging is one of the main applications of behavioural science to public policy. It has spawned a large research program in academia as well as the creation of ‘nudge units’, which aim to apply insights from behavioural science to improve public policy. DellaVigna and Linos (2022) observed that nudges in the real world (i.e., implemented by government nudge units) have much smaller effect sizes than those reported in academia. DellaVigna and Linos demonstrated that much of this difference could be attributed to selective publication in academia, which was not possible in the nudge units, where pre-trial protocols were included for all studies. We present a Robust Bayesian Meta-Analysis (RoBMA), which tests and corrects for publication bias. First, we highlight the heterogeneity of the effects observed, questioning whether nudging is a useful term to describe a variety of seemingly distinct empirical phenomena. Second, we observe evidence suggestive of publication bias in the real-world dataset, as well as the academic dataset. We inspect available pre-trial protocols to better understand these results. Next to furthering our understanding of the effectiveness of nudges, we discuss the implications of our findings for applying preregistrations in the behavioural public policy domain.

Revealing Hidden Heterogeneity: Explaining Differences in Treatment Effects in the Social Sciences — Antonia Krefeld-Schwalb

Antonia Krefeld-Schwalb, Eli Sugerman, Eric Johnson

With increasing frequency, policymakers rely on behavioral interventions in response to global challenges, such as the mitigation of climate change or global health crises. Yet, the empirical support for behavioral interventions has not been uniformly positive. Behavioral interventions exert substantially different effects across different contexts and individuals. In this study testing 7 behavioral interventions and 3 preference measures across 11 different panels and more than 6000 respondents, we illustrate this heterogeneity and suggest a framework of moderators to explain it. The framework’s four factors of moderators: Fluid Intelligence, Attentiveness, Crystallized Knowledge, and Experience interact with many behavioral interventions. Fluid Intelligence, for instance, increases the effect of framing on risk-taking but decreases the effect of defaults on choices.

Depending on the distribution of confounders in a sample, the actual effect of a behavioral intervention may be large, small, or not observed at all. Our results motivate a theoretical integration of confounders when predicting the effectiveness of behavioral interventions and when evaluating the representativeness of a sample.

Using Geopolitical Signposts To Promote Environmental Decision Making — Nienke Buters

Nienke Buters, Christoph Ungemach

Since the outbreak of the Ukraine war, many people have been willing to restrict their energy consumption. Conservative individuals who are normally unconcerned with sustainability may have saved energy due to geopolitical reasons. Therefore, we examined whether geopolitical motives play a role in energy saving intentions, and whether these motives differ depending on political orientation. In addition, we tested the geopolitical signpost effect in a gas-refueling scenario on the likelihood of opting an efficient and environmental gas option. Decision signposts can direct consumers toward a decision that is in line with their personal goals and that best achieves the activated objective.

In three studies, we established that geopolitical motives are a significant driver of energy-saving behavior intentions, independent of political orientation. Moreover, the geopolitical signpost increased the likelihood of opting for the efficient gas option. Although this effect was less pronounced for very conservative individuals, their proportion of efficient choices never fell below the levels of the control group.

This research offers a first step towards utilizing geopolitical motives in favor of the environment. Our findings have implications for interventions aiming to promote sustainable choices and reducing carbon emissions by offering an alternative to environmental signposts.

Effects of transparent defaults on decisions and decision makers' perceptions of the default setter — Leo J Kleiman-Lynch

Leo J Kleiman-Lynch, Lim Leong, Craig R.M. McKenzie

How does disclosing a default setter's motive affect decisions and decision makers' perceptions of default setters? Does the source of disclosure affect those decisions or perceptions?

Experiment 1 manipulated whether participants presented with a choice involving a default were informed about default effects and whether the default setter's revealed motive was selfless or selfish. Participants made their decision and rated the default setter. When informed about default effects but not the default setter's motive, participants were less likely to opt-out, but reported a more negative perception of the default setter. Disclosing a selfless motive further decreased opt-out intent and improved perception of the default setter. Disclosing a selfish motive resulted in a large increase in opt-out intent, and perceptions similar to when participants were informed of default effects but not motive. Experiment 2 manipulated whether the source of disclosure of the default setter's motive was the default setter or a third party. We replicated the effects of disclosed motive on opt-out intent from Experiment 1, and found that source of disclosure had no effect on decisions. However, third-party disclosure improved perceptions of a default setter with a selfless motive, and worsened perceptions of a default setter with a selfish motive.

The role of mental imagery and feedback in bridging the gap between climate change awareness and impactful climate action — Hulda Karlsson

Hulda Karlsson, Arvid Erlandsson, Erkin Asutay, Daniel Västfjäll

People are aware that climate change is happening, yet many do not act on this information. Increasing the knowledge about the impact of different pro-environmental behaviours could be a piece of the puzzle needed to increase climate action. The presentation will describe a study (manuscript under preparation) that aims to test impact feedback and the joint effect of combining feedback with a novel mental imagery-based intervention. The participants (N = 1012) for the study were recruited online and randomized to one of three conditions: 1) Environmentally themed Mental Imagery in combination with impact feedback; 2) impact feedback only; 3) Control. As predicted, we found that feedback about the impact of different pro-environmental behaviours can affect the intention to act pro-environmentally, however, the intention to act increased more when the feedback is combined with environmentally themed mental imagery. In addition, we found that combining the two interventions also increases the belief in the impact of pro-environmental behaviours to a higher degree than feedback alone. These results suggest the potential aggregated effect of using mental imagery with informational strategies.

Nudging towards lower indoor temperatures in times of energy crisis - When a default backfires — Richard Szanto

Richard Szanto, Borbala Szule, Judit Gaspar

We investigated what young adults would set as an ideal indoor temperature in their homes and what may influence their choice. The World Health Organization (WHO) proposes 18 °C as safe and well-balanced indoor temperature for countries with temperate or colder climates during cold seasons. We hypothesized that disclosing such information would influence participants' choice for indoor temperature. We compared this effect with classical nudges such as using default options. In this study 266 Hungarian college students were surveyed online in December 2022. When no treatment took place participants set an average which was way above WHO recommendations. Introducing 18 °C as a default option did not change the average temperature significantly. Yet, when WHO recommendations were communicated explicitly, the temperature dropped by one whole degree. When default and information disclosure were combined, average temperature was not significantly different from the first two groups, hence we found a backfire effect of the relatively low default in this case. Those who were highly worried about energy supply security in the country were willing to set much lower temperatures in their homes. However, we found no evidence for the negative relationship between climate change risk perception and desired indoor temperatures.

Pay One or Pay All? The Role of Incentive Schemes in Decision Making Across Adulthood — Sebastian Horn

Sebastian Horn, Thierry Schaltegger, Ryan Best, Alexandra M. Freund

Opportunities to accumulate monetary outcomes across multiple decisions can substantially reduce aversion to risk and to losses (known as “portfolio” or “wealth” effects). In the present research, we investigated whether older adults show similar effects when they can accumulate incentives. We compared 2 common incentive schemes in decision making: pay one (only a single decision is incentivized) and pay all (incentives across all decisions are accumulated). We hypothesized that people's tendency to evaluate outcomes in isolation (and to make more cautious decisions) is amplified with pay-one incentives and mitigated with pay-all incentives. Younger adults (18–36 years; N=147) and older adults (60–89 years; N=139) were randomly assigned to a pay-all or pay-one condition and made choices between monetary lotteries in the gain, loss, mixed domains.

Loss aversion was higher and choice sensitivity lower in older than younger adults. Decision quality and risk aversion were higher in the gain than mixed or loss domain, but unaffected by age. Modeling indicated that in the pay-one condition, value functions were more strongly curved, and choice sensitivity was higher than in the pay-all condition. The opportunity of accumulating incentives had similar portfolio effects on younger and older adults' decisions.

A descriptive social norm to nudge clients to a pro-environmental behavior — Alessia Dorigoni

Alessia Dorigoni, Nicolao Bonini

The impact of the human's behavior on the ecological environment is a hot topic that has been widely studied in the literature over the past few years. The consumption of plastic bottled water has steadily increased, even in countries where the quality of tap water is considered excellent; it is a problem for the environment because it implies transportation (CO2 emissions) and subsequently large amounts of non-biodegradable plastic waste. This paper addresses the issue of how policy-makers implement interventions aimed at increasing the consumption of tap water instead of bottled water. Specifically, it investigates how the use of a descriptive social norm in a restaurant might reduce the plastic bottled water consumption. Results show that the presence of the message "TWO IN THREE PEOPLE FROM THIS AREA DRINK TAP WATER" induces a significant impact on behavior because it decreases the plastic bottled water sales of 12 percentage points, from 96% to 84% (considering only the people who ordered water, plastic bottles or tap water and not the overall number of orders). Behavioral public policy is discussed to discourage bottled water consumption.

DECISION FROM EXPERIENCE II

Decisions from Experience: Sampling for others — Christoph Becker

Christoph Becker, Stefan Trautmann

When making a choice in real-world situations such as investing or making larger purchases, decision makers often trust others' experience. Commonly, such as in financial advice, there is a principal-agent relationship between decision maker and advisor, with the advisor collecting information by experience for one or multiple clients. Literature on decisions from experience so far has focused mostly on individual decision making, i.e. situations where decision makers gather information for themselves and then make a choice. We aim to provide insights into the linkage between information gathering and actual decision making, when both processes are handled by different persons. We test the fundamentals of such processes in a controlled laboratory setting. We vary the degree of responsibility agents have to collect information by having them either i) just gather information, ii) also provide a recommendation, or iii) also make a choice for the client. We contrast these results to decision makers collecting information and making decisions for themselves.

Attention Checks in Decisions From Experience: The Case of Checking Experiments — Yefim Roth

Yefim Roth, Ofir Yakobi

Can online participants be compared to laboratory subjects. In the five studies (Ntotal = 1519) reported in this article, we comprehensively compared the behavior of online attentive and inattentive participants; i.e., those who passed or failed a simple attention check. The findings show that in a decisions from experience paradigm (i.e., a multi-trial repeated choice task), even one simple attention check is sufficient to differentiate between attentive and inattentive participants. The validity of this separation is further evidenced in the significant difference in the reported conscientiousness measure.

The results fully replicated three previously run lab studies for the attentive participants, but not for the inattentive participants. This highlights the importance of using attention checks to avoid spurious conclusions.

There are three explanations for the behavioral differences between the attentive and inattentive participants. Attentive participants exhibited a pre-disposition towards checking. They also had a greater likelihood of noticing distinct outcomes. Finally, the inattentive participants tended to behave more randomly. When checking was beneficial, these three effects pointed in the same direction, leading to a major difference between participants. When checking was detrimental, these effects canceled each other out, resulting in similar checking rates and indistinguishable behavior.

Sample Range as Subjective Variability and Implications for Risk Preferences — Tianwei Liu

Tianwei Liu, Benjamin Scheibehenne

Variance/standard deviation has been the dominant measure of statistical variability in the decision-making literature, both prescriptively and descriptively. We challenge this tradition. Compared to SD, sample range is more often experienced and used in everyday life. Being easier to understand and to compute, range often produces equivalent judgments about variability as SD. Hence, we reason that decision makers are more likely to rely on range, rather than SD, to make everyday decisions about variability. Accordingly, we propose and test the hypothesis that range better predicts decision makers' subjective variability than SD does. When comparing the variability of two sets of numbers where range and SD lead to opposite conclusions, choices predominantly depend on sample range, not sample SD (Study 1). Range tends to increase with sample size, whereas SD does not. Consistent with range as variability but inconsistent with SD as variability, decision makers perceive a distribution as more variable after seeing more samples from it (Study 2). Perceived variability should influence risk preferences. Since larger sample size leads to higher perceived variability, valuation of a positive outcome decreases as sample size increases (Study 3). These results suggest that range better reflects how people perceive variability than SD does.

Noisy retrieval of experienced probabilities underlies rational judgment of uncertain multiple events — Leonidas Spiliopoulos

Leonidas Spiliopoulos, Ralph Hertwig

Learning event probabilities from the environment is a core competency of any organism, yet most research has focused on the judgment of a single event instead of sets of multiple-events. In our within-participant experiment, participants experienced samples from two distributions, or prospects, each comprised of two to four events, and were required to provide simultaneous judgments of the complete distribution.

We present a simple error-based model with a single free parameter that successfully models the elicited (subjective) probabilities. Calibration curves that map experienced probabilities to subjective probabilities support the theory's predictions that the degree of under-extremity (over-estimation of low likelihood events and under-estimation of high likelihood events) is strongly conditional on the number of judged events. We show that this can be attributed to noisy retrieval from memory of the sampled events where the error rates are progressively higher as the number of events increases. We conclude that the observed miscalibration of probability judgments from experience documented in the literature and our experiment can be attributed to the noisy retrieval component of an otherwise rational process-based decision model. We discuss the implications of our model for the conflicting empirical findings of over- and under-weighting in the decisions from experience literature.

Affect Biases Both Search and Preference in Decisions from Experience — Thorsten Pachur

Thorsten Pachur, Kevin Tiede, Mandy Hütter

Choice options are often linked with affective visual cues (e.g., attractive pictures) that are unrelated to the quality of the options. We examined how such superficial affective associations influence information search and preference by testing the impact of evaluative conditioning on experience-based risky choice. Participants first learned to associate visual stimuli (faces or logos) with positively or negatively valenced pictures. In a subsequent risky choice task, the stimuli were used as labels for monetary lotteries and participants chose between pairs of lotteries. In Experiments 1 and 2 (N= 78 and N = 80) participants had to learn about the lotteries' payoff distributions by drawing samples from them. There were two distinct effects of evaluative conditioning on behavior. First, participants drew larger samples from a lottery the more positively valenced its label was relative to the other lottery's label. Second, computational modeling indicated that positively valenced labels biased participants' preference for a lottery irrespective of the sampled information. Affect's biasing effect on choice disappeared in decisions from description (Experiment 3; N = 78), where information about the payoff distribution did not have to be retrieved from memory. Evaluative conditioning may thus sway preference only when relevant information is costly to obtain.

Description-plus-Experience: How decision-makers combine descriptions and experience — Leonardo Weiss-Cohen

Leonardo Weiss-Cohen, Emmanouil Konstantinidis, Tim Rakow, Frederic Vallee-Tourangeau

When making decisions, people can learn about their options in two ways: reading descriptive summaries, or direct personal experience. However, people do not need to rely on either descriptions or experience alone; for most decisions, they have access to both. We investigate decisions when both description and experience are available concurrently, evaluating the behavioural effect of the order in which they are presented, in comparison to decisions with experience or decision alone. Participants were asked to make 18 decisions between two pairs of buttons. Each lottery-pair had an option predicted for decisions-from-descriptions (D-Choice), and the opposite choice was predicted for decisions-from-experience.

Results show that both sources of information are combined when they are available concurrently. The order of presentation also influenced decisions, with participants choosing the D-Choice more frequently when they were shown description before experience, and less frequently when they were shown experience before descriptions. Information presentation also moderated the impact that observing a rare event had on choices. Reaction to rare events was stronger when descriptions were presented after experience. This research extends our understanding of how description and experience are integrated. We discuss how prior information influences the way in which later information is interpreted.

An attentional explanation for the description-experience gap — Veronika Zilker

Veronika Zilker, Thorsten Pachur

Preferences in risky choice often differ systematically depending on whether people learn about the options based on abstract descriptions of outcomes and probabilities (decisions from description), or by repeatedly sampling the options' payoff distributions (decisions from experience). This description-experience gap is often formalized in terms of differences in the weighting of probabilistic events. However, it is not clear how such differences might come about. Here we test a mechanistic, attentional account of differences choice behavior and probability weighting between description and experience.

We demonstrate that people attend systematically more to risky options (vs. safe options) in experience versus description. Attending more to the safe option was linked to a higher tendency to choose this option in both paradigms. Attention allocation was moreover linked to the elevation and curvature of probability weighting functions in Cumulative Prospect Theory in experience and in description. Therefore, differences in attention allocation between description and experience mediated differences in choice behavior and probability weighting between the paradigms. These analyses offer a novel process-based understanding of how the ways in which people learn about risky prospects may shape attention allocation, and thereby give rise to differences in preferences and probability weighting patterns.

DISHONESTY

The impact of communication on collaborative dishonesty — Mathilde Tønning Tønnesen

Mathilde Tønning Tønnesen, Christian Truelsen Elbæk, Stefan Pfattheicher, Panagiotis Mitkidis

Despite being an important part of cooperation and goal coordination, only a few studies within the field of collaborative corruption have included communication between participants and experimentally compared this to collaborations without communication. We therefore conducted a close replication and extension of the seminal study by Weisel and Shalvi (2015), by including communication as a manipulation in an online experiment using the dyadic die-roll paradigm. Participants were randomly assigned to either an individual condition, a no-communication condition (reflecting the original study) or a communication condition, where participants could chat after each round. All participants went through 10 trials of die rolls and would only get paid if the die rolls matched. The results overall replicated the original study. Participants in the dyadic conditions cheated significantly more than participants in the individual condition. However, participants who were able to communicate cheated significantly more than the dyads who could not communicate. This seemingly corrupt effect of communication was related to an increased experience of collaboration, indicating that communication plays an important role in creating a shared understanding and goal coordination among co-conspirators. Further investigation in the corrupting effect of communication and the mechanisms at play, is needed.

Honesty as a Moral Currency: Collaborative Dishonesty in the USA and India — Jonas Ludwig

Jonas Ludwig, Jonathan F. Schulz, Shaul Shalvi, Ivan Soraperra, Ori Weisel

Humans are extremely cooperative. They are also remarkably honest, even if they could profit from dishonesty. What determines how individuals navigate conflicts between honesty and cooperation, which may arise when successful collaboration requires dishonest behavior? We explored how the balance between honesty and cooperativeness depends on the cultural setting, connecting to a growing body of research emphasizing significant spatial and cultural variation of ethical thinking and behavior. To investigate the use of honesty as a flexible moral good (a “moral currency”), we conducted an online-study in the USA and India. We focused on individuals’ propensity to exchange honesty for mutually beneficial collaboration by measuring dishonesty in individual and dyadic settings. We predicted that US-Americans would be more inclined to trade off honesty for cooperation than Indians. The hypothesis relied on different levels kinship intensity in these countries, which we expected to predict relative collaborative dishonesty. Preliminary results did not support the hypothesis but offered interesting insights regarding trait honesty and the strength of family ties. We observed that individuals high in trait honesty, or who deemed family to be highly important in their lives, were more likely to consider honesty as exchangeable.

Factors affecting the accuracy of deception judgment in groups — Fergus Bolger

Fergus Bolger, Iain Hamlin

Judging whether someone is lying is a commonplace task occurring, for example, in criminal trials, business negotiations, job interviews, and in the activities of the security forces. Extant research shows that untrained individuals can barely detect deception above chance levels, but that training significantly improves performance. The latter finding suggests poor performance is due to judges failing properly to use all available cues to veracity. Thus, an additional means of improving accuracy could be to elicit judgments from groups rather than individuals – if people vary in terms of the cues they attend to, then pooling this knowledge might enhance performance. The literature testing this hypothesis is slim, and has produced equivocal results, perhaps due to low-powered experiments and other methodological issues.

We report two experiments with a total of 450 participants to test the following hypotheses:

- H1. Groups are more accurate in detecting lies than individuals.
- H2. Deception detection performance increases with group-size.
- H3. More elaborate advice regarding the specifics of message content will lead to greater change of opinion than advice relating to broad deception cues to, thus producing greater deception detection success.

All three hypotheses were supported. These results and their practical, theoretical and methodological implications are discussed.

Reference dependence and lying — Yossi Tobol

Yossi Tobol, Linda Dezső, Gergely Hajdu

We build on research documenting that an increased likelihood of unethical behavior follows a failure to meet expectations about monetary outcomes by generalizing these findings from the monetary to the time dimension. We report the results of two lab-in-the-field experiments conducted at the Ben Gurion Airport in Israel, enrolling 600 passengers from various check-in lines. We find that increased waiting is associated with higher mean reports on the die-under-the-cup task. A one standard deviation increase in waiting time is associated with reporting a one-higher number as the rolled outcome, yielding a 10 NIS increase in earnings. We find that those who expected to wait less than they did were twice as likely to report having rolled a higher number than those whose expectations were correct or expected to wait more than they did. These results are robust after holding the actual waiting time constant and after various robustness checks. Our findings extend the implications of reference dependence in inducing immoral behavior to situations where the loss is entirely subjective, as there is no actual monetary loss or foregone consumption. It underscores how subjective loss experienced on the time dimension adversely impacts moral preferences. We discuss applications and implications.

Can people use confidence to deceive others? — Marta Mangiarulo

Marta Mangiarulo, Briony Pulford, Andrew Colman

Do people misrepresent their degree of confidence in order to deceive others? According to the confidence heuristic, people can use confidence as a proxy for the reliability of communicated information in cooperative situations. In this study, we explored two-player mixed motive games, rather than coordination games, to understand whether participants would try to take advantage of the confidence heuristic to attempt to mislead a co-player by misrepresenting their degree of confidence in order to increase their own payoff. To explore this research question, we manipulated the quality of the information provided and game payoffs for 55 dyads who communicated about a series of tasks where they had to decide which of two shapes was closest in size to a target shape. Payoffs were structured as a Deadlock game with incomplete and asymmetric information. Preliminary findings showed that better quality information engendered greater confidence, that people with high confidence did deceive others, and that they did it by strategically withholding the correct answer during discussion. Further analyses will look at dyad-level correlates of strategic misrepresentation.

Facing the Mirror: Paradox Mindset and Self-Esteem. — Eriselda Danaj

Eriselda Danaj

One of the main tenets of moral psychology posits that individuals like to think of themselves as ethical. Dishonest behavior leads to tensions between the desired and the actual self, i.e., cognitive dissonance. Extant research shows that individuals often resolve this tension by projecting an enhanced image of themselves. I argue that individuals scoring higher on paradox mindset, i.e., people who accept and feel energized by tensions, are better equipped to process their dishonesty. Due to their cognitive flexibility, they can accept the tensions produced by their dishonesty as persistent and unsolvable puzzles. I provide correlational and experimental evidence (5 studies, N = 1427) in support of a positive association between paradox mindset and self – esteem even when individuals recall past instances of their own dishonest behavior (Studies 1– 4). This effect was mediated by cognitive flexibility (Study 4). However, making paradoxical framing salient has the opposite effect, reducing self – esteem (Study 5). Taken together, these findings suggests that the way individuals think about tensions can affect the rationalization processes following dishonest acts, but these processes can be altered by activating different cognitive frames.

Lying for others may boost dishonesty — Mika Guzikevits

Mika Guzikevits, Shoham Choshen-Hillel

We studied people's tendency to engage in different types of lies. We hypothesized that in some situations, because prosocial lying is judged more positively, people would be more likely to lie to benefit another person than themselves. Four studies partially supported our hypothesis. Participants said they would lie more for others than for themselves. This was mediated by expected judgment.

The Effect of Numerical Magnitude on Ethical Judgment and Behavior — Ben Heller

Ben Heller

A diagnostic indicator of the unethicity of an act is the magnitude of the transgression, due to it representing the psychological distance from an ethical reference point. However, the same objective magnitude can be represented using different scales that affect its numerical magnitude. In the current research, we examine the effects of numerical magnitude on ethical judgements and behaviors. According to Self-Concept Maintenance theory, a positive moral self-image can be maintained if one only slightly transgresses the ethical reference point, thus the same objective distance described using larger numerical magnitudes will be judged as more unethical and will lead to less unethical behavior. On the other hand, the theoretical rationale of slippery slope suggests that large numerical magnitudes render single units relatively insignificant, making it easier to start crossing the line between honesty and dishonesty. In two studies of ethical judgements, we found that describing the same violation using large numerical magnitudes led to harsher judgments of the acts' unethicity, but only when participants were unfamiliar with the measurement scales used. In our behavioral study, we found that participants cheated more when the opportunity was described in large numerical magnitudes compared to small numerical magnitudes, supporting the slippery slope approach.

CONSUMER DECISION MAKING II & LEARNING

Investigating the attentional process underlying the decision signpost. — Balachandar Kaliappan

Balachandar Kaliappan, Prof. Dr. Christoph Ungemach

Decision signposts help consumers to choose options that match their personal goals. In two preregistered MouselabWEB studies, we empirically investigated the attentional processes and cognitive mechanisms underlying decision signposts. In the first study, we found that in the presence of decision signposts, participants allocated more attention to attributes relevant to their personal goals than others. Additionally, we observed participants made fewer transitions between cost attributes (AFC - Price) in the presence of a decision signpost. In the second study, we implemented a delay of 1000 ms to disincentivize transitions between cost attributes and compared its performance with the decision signpost. In the presence of a decision signpost, participants made fewer transitions between cost attributes and showed a significantly higher likelihood of choosing the environmental option. The mere presence of the delay altered attention patterns but did not facilitate participants' choice behavior.

Inaction Inertia Walks into a Bar! Would Removing Discounts Reminders from Menus Increase Sales After, but not During Happy Hour Activities — Yaniv Shani

Yaniv Shani, Coby Morvinski, Hadar Liat

Inaction inertia occurs when bypassing an initial attractive opportunity decreases the likelihood that subsequent similar action opportunities will be exploited. In many establishments, countless consumers miss such opportunities on a daily basis, when arriving at drinking and dining establishments after Happy Hour promotions have ended, which may lead to a post-promotion dip in sales. Testing inaction inertia in the field, we assessed whether the effect does exist in the field and if so, how long it would take the effect to ebb away. With this knowledge we aimed to offer a means to alleviate the unfavorable outcomes of the missed "happy hour" promotions. Data from 2,047 consumers, consisting of 520 groups of real patrons, confirms that the effect is robust and applicable for actual consumption.

Patrons consumed significantly more and spent more money, when a reminder about a missed opportunity to enjoy a discount was removed from the menu, even though they were aware of the missed discount. Demonstrating the strength of the phenomenon, the effect remained robust during the hours that followed the loss of opportunity to benefit from the discount. Practical implications and additional means to alleviate the effect are discussed.

Transaction-Level Wage Transparency and Consumer Preferences — Christoph Ungemach

Christoph Ungemach, Lucas Stich, Christoph Fuchs, Martin Spann

This research examines the consequences of transaction-level wage information on consumer preferences. In four experiments, in both lab and field settings across multiple service domains, we document that disclosing a service worker's compensation, if perceived as fair by consumers, can increase consumer preference and willingness to pay for that firm's service. In addition to higher quality expectations, this greater preference for services provided in a fair-wage setting is driven by consumers' feelings of anticipated guilt. Available social norms regarding fair compensation are shown to moderate the proposed process. This research offers a first step toward understanding the psychological and behavioral consequences of transaction-level wage information to consumers, enabling managers to better identify when to disclose wage information as part of their marketing strategy. This research also informs policy makers how to encourage social preferences and consumer choices in order to promote fair outcomes for consumers, firms, and workers.

The Shortest Distance Between Two Points is Not a Straight Line: The Impact of Borders on the Choice for Local Food — John Price

John Price, Bernadette Kamleitner

Locavorism, the movement promoting the consumption of local food, has sharply increased in popularity in recent years. Nonetheless, what do people consider as local? Some research suggests that local is defined by distance from oneself, e.g., within a 100-mile radius. Other research suggests it depends on whether something is produced within one's own borders, e.g., one's state. In three studies, we offer evidence to support the latter.

Study 1 shows the main effect of borders on the preference for local food in a real context. Study 2 shows that this effect holds in a fictional context. Study 3 shows that this effect also holds when one is outside one's native borders, and thus cannot be explained simply by ethnocentrism. Both Studies 2 and 3 show that the preference for foods produced within one's border is mediated by the perception that such foods are more local, and not by the perception that they are more proximate in distance. These studies suggest that producers of local food outside of the border of a particular market may encounter difficulties unless they are able to connect with people across the border by means of some shared social characteristic.

Learning the value of Eco-Labels: The role of information in sustainable decisions —
Alejandro Hirmas

Alejandro Hirmas, Jan Engelmann

The European Union plans to develop a sustainability rating to promote sustainable consumption. Ratings are an efficient method to provide information to consumers. However, it is not entirely clear how these ratings affect the consumers' decisions. In an incentivized experiment, participants make multiple decisions between different products based on three attributes, price, quality and sustainability. Quality and sustainability are presented in a three-tier rating. Participants are initially not aware of how these ratings translate to the underlying attributes, resembling the decision context of an 'uninformed' consumer at a store. In the middle of the experiment, participants receive explicit information about how the ratings translate to the underlying attribute. Using a within-subject design, we vary the information that participants receive. In addition to the choice data, we also record the information search (i.e. visual attention) to better understand individual differences in the participants' decision processes. Our results show that participants treat quality- and sustainability ratings similarly. We find a significant correlation between attention to an attribute and its importance on the decision. Finally, providing additional information to the participants does affect their decisions, but to a limited extent. Our results provide useful insights for future policy regarding sustainability labels.

Towards unifying category learning and probability learning using the CAL framework of rule extrapolation and contextual modulation — René Schlegelmilch

René Schlegelmilch

Stimulus classification is an everyday feat (e.g., in medical diagnoses by differentiating ultrasound images). Category feedback, however, is often non-deterministic (e.g., by 25% chance untrue a.k.a. probabilistic feedback) rendering experiences as somewhat unreliable. In probability learning and economic decisions (when humans try to predict which of two outcomes is more rewarding), it is often observed that humans decide non-rational (probability matching), which has been formerly attributed to basic reinforcement driven (e.g., Win-Stay Lose-Shift strategy). However, more recent studies suggest that humans enact strategies akin to a Gamblers fallacy (e.g., expecting a rare outcome after a long streak of common outcomes). Here, we provide an explanatory account of these and other strategies based on the Category Abstraction Learning model (CAL). As originally designed to solve complex category learning tasks, we show how adding the assumption to encode the streak of outcomes (categories or reward) also predicts learning of sequential decision rules in probability learning and fear conditioning (e.g., Perruchet effect). We discuss CAL's potential as a domain-general account of human learning in experience based decisions.

Keeping Options Open: How Decision Reversibility Dampens Evaluations of Choices based on Quality — Dionysius Ang

Dionysius Ang

Attending to consumers' preference for reversible decisions, firms offer increasingly lenient yet costly return and cancellation policies. Despite preferring reversible decisions, consumers evaluate choices they can reverse less favorably. Thus, retailers are in a catch-22 reversible decisions attract customers yet diminish their post-choice evaluations. Addressing this impasse, we propose that how reversibility affects post-choice evaluations depends on whether decisions are a matter of taste or quality. An analysis of thousands of Airbnb listings and five experiments reveal that (1) although consumers prefer reversible decisions, they evaluate their choice less favorably when it is based on quality (but not taste), and (2) framing decisions around taste attenuates the negative effect of reversibility on evaluations. Thus, making decisions more irreversible boost post-choice evaluations. An analysis of over 40 000 Airbnb listings externally validates our predictions. Increasing a listing's cancellation policy strictness increased occupancy rates more for listings promoted in terms of quality rather than taste. The findings reveal boundary conditions of decision reversibility's detrimental effects on post-choice evaluations and facilitate optimal return and cancellation policy design and message framing.

