



Research Priority Area  
Behavioral Economics



UNIVERSITEIT VAN AMSTERDAM

## Is sin original?

The neural, cognitive, and social underpinnings of human cooperation

Is cooperation intuitive? Is greed calculated? Does the truth come naturally? Does lying necessarily require cognitive effort? The classical economic approach suggest that self-interest drives behavior. Greed is thus expected to be the default, and cooperation calculated. Self-serving lies should be easy to generate, while honesty less so. The classical cognitive psychological approach, on the contrary, considers honesty the default, and holds that lying requires deliberation. While these two research lines have long lived parallel to each other, there is recent cross-interaction.

The goal of this interactive symposium is to bring together these perspectives, and to strengthen interdisciplinary collaboration. This symposium will discuss recent work that may reveal the conditions in which norm obeying behavior is intuitive, or rather calculated.

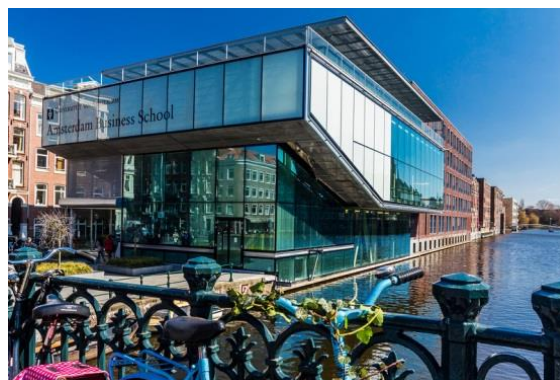
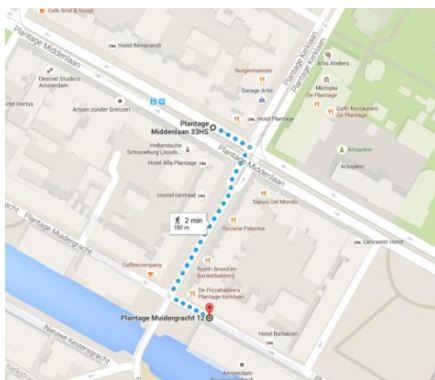
**Date and time:** May 3<sup>rd</sup>, 2016, 08:45 to 18:30, reception till 20:30.

**Location:** University of Amsterdam, REC-M, room 1.03

**Address:** Amsterdam Business School, Plantage Muidersgracht 12, 1018 TV Amsterdam.

### Directions (by public transport):

- From Schiphol Airport take the train to “Amsterdam Centraal” Station (15 – 20 minutes).
- From Amsterdam Centraal Station take tram 9 in the direction of Diemen (Sniep). Get off after 6 stations at a stop called “Artis” (15 minutes).
- From Artis tram stop to Amsterdam Business School:



8:45 - 9:10 Gathering and coffee

9:10 – 9:15 Welcome – **Shaul Shalvi** (UvA)

**Session 1** Chair: **Agneta Fischer** (UvA)

9:15 – 10:15 Keynote: **David Rand** (Yale University)  
Intuitive social heuristics and deliberative self-interest

10:15 – 10:40 **Anthony Evans** (Tilburg University)  
The effects of observed decision time on expectations of cooperation.

10:40 – 11:05 **Shaul Shalvi** (UvA)  
The collaborative roots of corruption

11:05 – 11:30 Coffee break

**Session 2** Chair: **Victor Lamme** (UvA)

11:30 – 11:55 **Jan Engelmann** (UvA)  
The neural circuitry of emotion-induced distortions of trust

11:55 – 12:20 **Matthijs van Veelen** (UvA)  
Repeated games, information, and moral sentiments

12:20 – 12:45 **Maël Lebreton** (UvA)  
Original vs. calculated decisions: investigating “dual-process” models of cognition.

12:45 – 13:45 Lunch

**Session 3 Blitz** Chair: **Michael Vliek** (UvA)

13:45 – 15:15 Various speakers

15:15 – 15:45 Coffee break

**Session 4** Chair: **Theo Offerman** (UvA)

15:45 – 16:45 Keynote: **Yoella Bereby-Meyer** (Ben-Gurion University of the Negev)  
Deliberate honesty

16:45 – 17:10 **Bruno Verschuere** (UvA)  
Lying takes time

17:10 – 17:30 Coffee break

**Session 5** Chair: **Annelies van Vianen** (UvA)

17:30 – 18:30 Keynote: **Benjamin Hilbig** (University of Koblenz-Landau)  
Who are those (intuitive) cooperators? A personality-based approach to explaining cooperation, honesty, and morality.

18:30 – 18:35 Closing remarks – **Bruno Verschuere** (UvA)

18:35 – 20:30 Reception

## Abstracts

**Session 1** | 9:15 – 11:05 | Chair: **Agneta Fischer** (UvA)

### David Rand

Title: Intuitive social heuristics and deliberative self-interest

Why do people cooperate? A central explanation involves interaction structures that make cooperation long-run payoff maximizing (e.g. repeated interactions, reputation systems, institutional punishments, etc). But why do people cooperate even such future consequences are not enough to make cooperation pay off? Here, I consider this question from a cognitive perspective. I employ the dual process framework, which contrasts cognitive processes that are fast and automatic but inflexible (“intuitive” processes) with those that are effortful and controlled but flexible (“deliberative” processes), and propose a theory I call the “Social Heuristics Hypothesis”. I argue that people internalize typically successful (i.e. long-run payoff maximizing) behaviors as intuitive heuristics for social interaction. Deliberation then shifts us towards behavior that is payoff-maximizing in the specific situation at hand. Because most of our important interactions (e.g. those with our co-workers, friends, and family) are long-term rather than anonymous and one-shot, I argue that we intuitively apply a ‘future consequences’ heuristic: our intuitions support strategies which are payoff-maximizing in the presence of future consequences. In this talk, I will present a formal evolutionary game theoretic model of dual-process agents playing Prisoner’s Dilemmas, which generates clear testable predictions. I then present behavioral data from economic game experiments that support these predictions. I will show meta-analytic evidence that inducing subjects to carefully deliberate undermines cooperation in 1-shot games (where non-cooperation is payoff-maximizing), but has no effect in games where it can be payoff-maximizing to cooperate. I will then present experiments which directly demonstrate the “spill-over effects” that are the heart of my theory. In these experiments, we show that immersing subjects in environments that do or do not support cooperation has large effects on subsequent prosociality in one-shot games – subjects immersed in environments that support cooperation are more prosocial. Furthermore, these effects are most pronounced among subjects who use heuristics, suggesting that intuitive processes play a key role in the spillovers we observe. Our findings help to explain variation in one-shot anonymous cooperation, linking this intrinsically motivated prosociality to the externally imposed interaction rules experienced in other settings.

Bio: David Rand is an associate professor of Psychology, Economics, and Management at Yale University, an member of the Yale Institute for Network Science, Institution for Social and Policy Studies, and Cognitive Sciences Program, and the director of Yale University’s Human Cooperation Laboratory. His research combines a range of theoretical and experimental methods in an effort to explain the high levels of cooperation that typify human societies, and to uncover ways to promote cooperation in situations where it is lacking. David's work has been published in top journals including Nature, Science, PNAS, Psychological Science, and the American Economic Review.

## **Anthony Evans**

Title: The effects of observed decision time on expectations of cooperation

A number of recent studies have tested whether cooperative decisions are faster (or slower) than selfish decisions. The present research builds on these findings by investigating how people use observed decision time to predict others' behavior. In four studies, participants received information about others' decision times (fast or slow) and were asked to estimate how much they contributed to a common pool. People believe fast decisions are more extreme than slow decisions; in other words, they assume that fast decisions are either extremely selfish or extremely cooperative. People also believe that fast deciders are less moral and less conflicted than slow deciders. Decision time also moderates the effects of other informational cues: Positive facial expressions and perceptions of trustworthiness have stronger effects on expectations when paired with fast decisions. Finally, observed decision time also has behavioral consequences – people make more extreme decisions when interacting with a partner who decided quickly. Observed decision time plays a crucial, but under examined, role in how expectations of others' behavior are formed.

Bio: Anthony (Tony) Evans is an assistant professor of social psychology at Tilburg University. His research investigates the social-cognitive processes underlying decision-making in social dilemmas and dilemmas of trust and reciprocity.

## **Shaul Shalvi**

Title: The collaborative roots of corruption

Norms may conflict. People like to cooperate. They also like to be honest. What happens when cooperating requires lying? While the benefits of cooperation are clear, little is known about its possible negative aspects. Introducing a novel sequential dyadic die-rolling paradigm, we show that collaborative settings provide fertile ground for the emergence of corruption.

Bio: Shaul Shalvi studies ethical decision making. In his current research he seeks to unfold the psychological processes underlying the roots of corruption and the institutional economic settings most likely to make corrupt behavior emerge, spread, and importantly curbed. He obtained a PhD at the University of Amsterdam, and after working at Ben-Gurion University, he is now an Associate Professor at CREED, the Center for Research on Experimental Economics and political Decision Making, at the University of Amsterdam.

**Session 2** | 11:30 – 12:45 | Chair: **Victor Lamme** (UvA)

**Jan Engelmann**

Title: The neural circuitry of emotion-induced distortions of trust

Emotions may be a key source of irrational decision-making, but little is known about how emotions influence the underlying neural circuitry of choice. I will discuss results from recent experiments that demonstrate that aversive emotions distort decision-making and, concurrently, choice-relevant neural circuitry. In the domain of social decision-making, they reduce trust and suppress trust-specific activity in left temporoparietal junction (TPJ). In addition, aversive emotions reduce the functional connectivity between TPJ and emotion-related regions such as the amygdala. We also find that the posterior superior temporal sulcus (pSTS) plays a key role in mediating the impact of aversive emotions on brain-behavior relationships. In the domain of economic decision-making, ventromedial prefrontal cortex and ventral striatum show a marked reduction in the neural coding of the expected subjective value (ESV) of risky options, as well as the prediction of observed choices, and functional coupling with other areas of the valuation system. At the same time, activity in the anterior insula shows an increase in coding the negative ESV of risky lotteries, and this neural activity predicts whether the risky lotteries would be rejected. Taken together, this pattern of results suggests that aversive emotions not only distort trust and risky decision-making, but lead to a suppression of choice-relevant neural circuitry that supports domain-specific computations (social cognition, subjective valuation). These findings increase our understanding of the neural circuitry of emotional distortions and may thus help identify the neural bases of psychiatric diseases that are associated with emotion-related psychological and behavioral dysfunctions.

Bio: Jan B. Engelmann is Associate Professor of Neuroeconomics at the Amsterdam School of Economics, University of Amsterdam. His research focuses on the neurobiology of emotions, particularly their influence on social and economic decision-making. Jan studied Experimental Psychology at the University of St. Andrews and then did his PhD at Brown University (2002-2008) at the Laboratory for Cognition and Emotion (with Luiz Pessoa), where he investigated the influence of motivation on cognition. To pursue his emerging interest in NeuroEconomics, he then joined the Computation and Cognitive Neuroscience Lab at Emory University as post-doc (with Greg Berns; 2007-2009), where he investigated the influences of social context on risky decision-making. Subsequently, he investigated the role of emotions in decision-making at the Laboratory for Social and Neural Systems Research (with Ernst Fehr; 2010-2014) at the University of Zurich. Jan has received a number of awards including the Radboud Excellence Fellowship, the John Dickhaut Memorial Grant from the Society for Neuroeconomics, the Dissertation Research Award from the American Psychological Association and a Student Research Grant from the Association for Psychological Science.

## **Matthijs van Veelen**

Title: Repeated games, information, and moral sentiments

In a recent article, Bear and Rand (2016) introduce a formal model to study the role of intuition and deliberation in the evolution of cooperation. Their agents play prisoner's dilemmas, some of which are repeated with probability 0, while others have a probability  $p$  that any round is followed by another one. The key ingredient of their model is that agents can decide to pay a (stochastically variable) cost to find out which one of the two situations they are in. We generalise their model to richer information structures, more general cost distributions, and allow for a larger set of strategies to investigate the robustness of the finding that theoretically we should expect intuition to be cooperative. The model can also be made to include a simpler, but equally insightful version of the model by Hoffman et al. (2015) that suggests that choosing to remain uninformed can also be an equilibrium strategy.

Bio: PhD. Vrije Universiteit Amsterdam, 2004. Professor of Evolution and Behaviour at the UvA. Member of De Jonge Akademie (The Young Academy)

## **Maël Lebreton**

Title: Original vs. calculated decisions: investigating "dual-process" models of cognition.

A large fraction of research in behavioral decision-making is framed under the "dual-process" theory of cognition: individuals' decisions –e.g. being altruistic vs. egoistic, risk-seeking vs. risk-averse, patient vs. impulsive- are presumably the result of a competition between two brain-system. The two systems are thought to make different choices, one being fast, automatic, and intuitive, and the other slow, deliberative, and calculated. In this talk, I will present some attempts to investigate and assess whether decisions are due to such dual-process competition.

Bio: Maël is a Post-doctoral Researcher, based at the Center for Research in Experimental Economics and political Decision-Making (CREED), at the University of Amsterdam (UvA), in the Netherlands. He is affiliated to the Amsterdam Brain & Cognition (ABC) interdisciplinary initiative, and the Amsterdam School of Economics (ASE). Since his B.Sc in 2007, he have been interested in understanding the foundation of human and animal behavior. Maël's main focus has been the investigation of the computational and biological (neural, genetic) basis of economic phenotypes (choices, preferences, socio-economic status) - a recent disciplinary field called Neuroeconomics. He is combining his rudimental knowledge in (cognitive) neurosciences, (behavioral) economics, and (reinforcement) learning to provide new hints about our (often irrational) behavior, by associating (behavioral) experiments, (computational) models and (functional) neuroimaging.

**Session 3 Blitz** | 13:45 – 15:15 | Chair: **Michael Vliek** (UvA)

### **Various speakers**

**Session 4** | 15:45 – 16:45 | Chair: **Theo Offerman** (UvA)

### **Yoella Bereby-Meyer**

Title: Deliberate honesty

When lying serves self-interest, that is, when lying is tempting and lies are easy to craft, honesty may require deliberation. I'll present studies that support this view, showing that in tempting situations a decrease in self-control led to increased dishonesty, while encouraging contemplation and reflection lowered dishonesty. Some other studies show that pro-social behavior may be the automatic tendency. An attempt will be made to reconcile these seemingly contradictory findings.

Bio: Yoella Bereby-Meyer is an associate professor at the department of Psychology at Ben-Gurion University of the Negev. She holds a Ph.D. in Industrial Engineering (1997) from the Technion-Israel Institute of Technology. She did her post doctorate at Harvard Business School with Prof. Al Roth, the 2012 Noble laureate. She recently spent another year at Harvard Business School, this time a sabbatical with the Negotiations, Organizations and Markets group headed by Prof. Max Bazerman. She studies decision making in social contexts from an interdisciplinary perspective, combining economics and psychology, and focusing on topics such as cooperation, reciprocity, fairness, and honesty. She has published extensively in economics (including a paper in the American Economic Review) and in psychology (including papers in Psychological Science, Journal of Experimental Psychology: General, and others).

### **Bruno Verschuere**

Title: Lying takes time

People lie....sometimes. Most people mostly tell the truth. While truth telling is the default in human communication, deception typically requires extra mental effort. I will present self-report, behavioral, and neural evidence suggesting that lying typically comes with a cognitive cost. In fact, this mental cost is so large and so robust, that it has led to cognition-based lie detection tools applicable at the individual level.

Bio: Bruno Verschuere is Associate Professor of Forensic Psychology at the University of Amsterdam. He is co-founder of the European consortium of Psychological Research On Deception Detection (E-PRODD; <http://eprodd.eu/>). He regularly gives workshops and lectures on lie detection, has been expert witness on lie detection in court, and has published over 50 papers on deception and lie detection. His latest book *Detecting Deception: Current Challenges and Cognitive Approaches* edited together with Aldert Vrij and Par-Anders Granhag appeared with Wiley in 2015.

**Session 5** | 17:30 – 18:30 | Chair: **Annelies van Vianen** (UvA)

**Benjamin Hilbig**

Title: Who are those (intuitive) cooperators? A personality-based approach to explaining cooperation, honesty, and morality.

Both recent research and mere everyday observation clearly reveal that substantial individual differences exist in the extent to which humans cooperate and show honest and moral behavior. This individual variation has often been acknowledged, but remained largely unexplained. Whenever seeking to provide some explanation, extant approaches predominantly rest upon specific, narrow traits (like social value orientations or moral identity) which are often measured in paradigms so closely resembling the to-be-explained behavior that corresponding correlations are close to being trivial. To counteract unnecessary construct inflation, we study human cooperation, honesty, and morality through the lens of models of basic personality structure and thus a deliberately broad perspective. The talk will provide an overview of a variety of experiments which consistently point to the unique role of the Honesty-Humility factor from the HEXACO model for predicting individual variation in the host of behaviors studied. The resulting basic-trait answer to the question which individuals are more (intuitively) inclined to cooperate and behave in an honest fashion complements approaches from an economic, social, or cognitive perspective.

Bio: Benjamin Hilbig is an experimental psychologist at the University of Koblenz-La. His main interests are within the judgment and decision making domain. His papers are somewhere at the intersection between cognitive/experimental psychology (including formal modeling), behavioral economics, personality, and social psychology .