
CBEN Conference 2017
Evolution and Cooperation
Preliminary Programme



KNAW



BRILL

Programme

November 16th, 2017

20:00- *Pre-conference drinks* Grandcafé de Burcht

November 27th, 2017

09:00-09:30 *Registration*

09:30-10:30 Keynote **Charlotte Hemelrijk:** The self-organization of primate social systems: models and empirical data

10:30-11:10 Session 1 **Lauren Seex:** Elo-rating and emergent patterns in DomWorld
Hannes Rusch: If an animal could choose its fitness function, would it want one with a conscience?

11:10-11:30 *Coffee break*

11:30-12:30 Keynote **Carsten de Dreu:** The structure of conflict: biobehavioral mechanisms underlying out-group aggression and in-group defense

12:30-13:55 *Lunch break*

13:55-14:55 Early career award **Jorg Massen:** Title t.b.c.

14:55-15:15 *Coffee break*

15:15-16:15 Session 2 **Daniel Balliet:** How has evolution shaped interdependent minds?
Functional Interdependence Theory
Catherine Molho: Mapping interdependence in daily life
Shona Duguid: Coordinating decisions for cooperation: a comparative perspective

16:15-16:30 *Coffee break*

16:30-16:40 Opening address

16:40-17:10 Plenary discussion

17:10-18:30 Posters & drinks

19:00- *Dinner* Stadscafé van der Werff

November 28th, 2017

09:00-09:30 *Coffee*

09:30-10:30 Keynote

Redouan Bshary: A comparative approach to the study of cooperation for direct benefits

10:30-11:10 Session 1

Zegni Triki: Shifts in the biological market of the marine cleaning mutualism caused a decline in a cleaner wrasse's sophisticated strategies

Gerald Carter: Manipulating social relationships in vampire bats

11:10-11:30 *Coffee break*

11:30-12:30 Keynote

Matthijs van Veelen: Evolution of cooperation: theory and empirics

12:30-13:45 *Lunch break*

13:45-13:55 Poster award

13:55-14:55 Keynote

Andy Radford: Consequences of out-group conflict

14:55-15:15 *Coffee break*

15:15-16:55 Session 2

Irene Godoy: Partner choice in wild capuchin monkeys

Suska Nolte: Targeted helping and mutualistic cooperation in captive chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*)

Stephan Jagau: A general evolutionary framework for the role of intuition and deliberation in cooperation

Paul van Lange: Does wealth trigger spiteful rejection of unfair offers? A cultural evolutionary approach of China and the United States

Larissa Mendoza Traffon: Visual art as an underlying mechanism of group mindedness and collective intentionality

16:55-17:10 *Coffee break*

17:10-17:40 Plenary discussion

17:40- *Drinks*

Location

CBEN 2017 is hosted by Leiden University.

The building of the Faculty of Social Sciences is located a short walk from Leiden Centraal Station. There are frequent train connections to Schiphol Airport (20 minutes) and Amsterdam Centraal Station (35 minutes).

Address

University of Leiden – Faculty of Social Sciences
Pieter de la Courtgebouw
Wassenaarseweg 52, 2333 AK Leiden

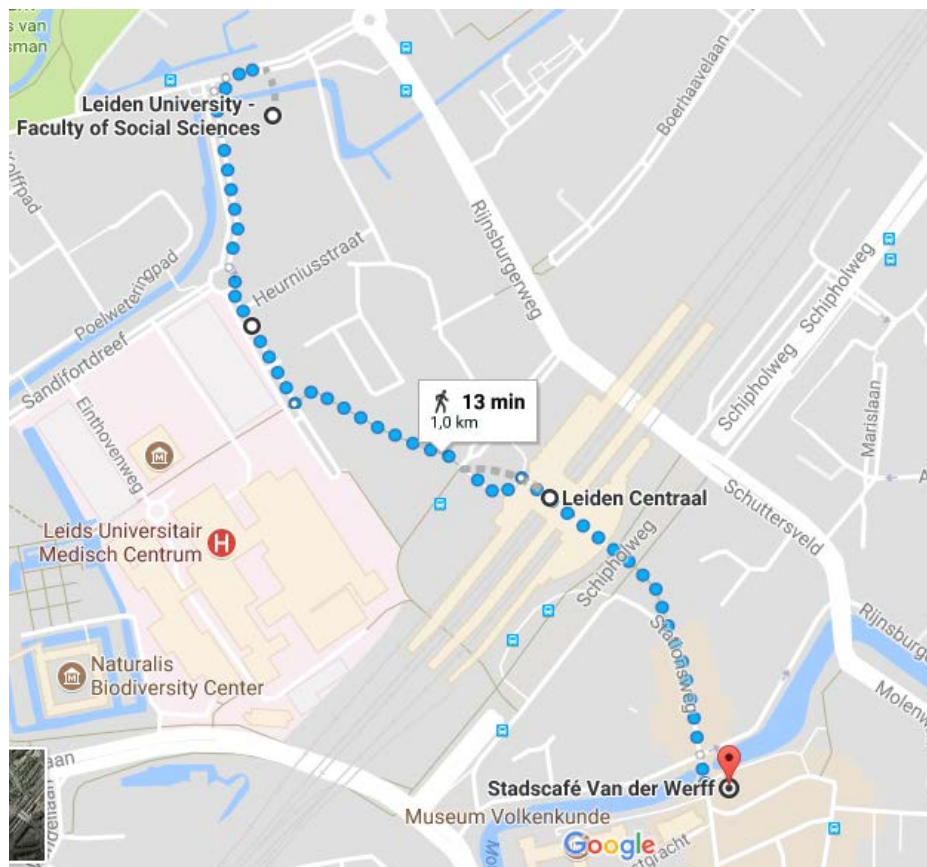
The dinner on Monday will be at Stadscafé Van der Werff, a 15 minute walk from the conference location and opposite of Leiden Centraal Station. For those in town early, there will be informal pre-conference drinks at Grandcafé de Burcht on Sunday from 20:00 onwards.

Address

Stadscafé Van der Werff
Steenstraat 2, 2312 BW Leiden

Address

Grandcafé de Burcht
Burgsteeg 14, 2312 JS Leiden



Keynotes

Charlotte Hemelrijk

Professor of Self-Organization in Social Systems, Department of Behavioural Ecology and Self-Organisation, Rijksuniversiteit Groningen

The Self-Organization of Primate Social Systems: Models and empirical data



Individual based models with a high potential for self-organisation have shown that cognitively simple rules in individuals may lead to complex collective patterns. I will illustrate this for the complex patterns of aggression and affiliation in two types of social organization of primates, the intolerant or despotic society and the tolerant or egalitarian society.

A model (called DomWorld) and its extensions deliver patterns of aggression and affiliation (mainly by grooming) that resemble these societies in many aspects despite the low level of cognition in the model: Individuals merely group, compete and groom others if they are anxious to lose a fight. The model shows patterns of aggressive and affiliative patterns similar to those of primates. For example, coalitionary support of all types (conservative, bridging and revolutionary) emerges, as well as its reciprocation, and reciprocation of contra-support or opposition. Further, grooming is reciprocated, exchanged for support, and shown in patterns of post-conflict affiliation, including those of 'reconciliation' and 'consolation', with similar differences between species with a tolerant and intolerant dominance style as in empirical data. These patterns emerge without record-keeping and in the absence of a motivation to help others or to reconcile and without any knowledge of social relationships.

They emerge mainly because dominance interactions create a spatio-social structure that influences the occurrence of other social behavior in unexpected ways. When competitive interactions in the model are based on the winner-loser effect, i.e. after losing a fight the chance to lose the next fight is increased (either based on DomRatio or Elo-rating), intersexual dominance relations appear to depend on sex ratio and intensity of aggression. Females become more similar in rank to males, the fiercer the aggression among group members is, and, in groups with intense aggression, the higher the percentage of males in the group is.

This model has been validated because its new patterns have been confirmed by empirical data. For instance, similar empirical patterns of intersexual dominance in relation to sex ratios have been reported for fish, primates and humans, and the 'exchange' of contra-support (opposition) for being groomed and vice versa has been observed shown in more intolerant species.

These kinds of models help us to develop new hypotheses about the integration of different traits and the mechanisms underlying social complexity.

Carsten de Dreu

Professor in Social and Organizational Psychology and Leiden Institute for Brain and Cognition, Leiden University

Center for Experimental Economics and Political Decision Making (CREED), University of Amsterdam

The Structure of Conflict: Biobehavioral Mechanisms underlying Out-group Aggression and In-group Defense



Intergroup conflict and competition can motivate individuals to contribute to their group's fighting capacity at a personal cost and at sometimes high risk. Sometimes, such self-sacrifice is motivated by the greedy desire to subordinate and exploit out-groups (out-group aggression) and, by implication, it is motivated also by the fear-based need to defend the in-group against the rival's out-group aggression. Archival analyses of group-hunting animals, firms attempting hostile take-overs, and interstate warfare all suggest that out-group aggression is typically less successful than in-group

defense, suggesting that evolutionary and cultural pressures may have favored capacities for cooperation and coordination when the group goal is to defend, rather than to expand, dominate, and exploit. Here I examine this possibility in light of the results from experiments in which we engaged (groups of) individuals in predator-prey contests and tracked neural and neuroendocrine activity, behavioral investment in aggression and defense, and group-level coordination. Implications for regulating conflict and achieving world peace will be discussed, and avenues for future research will be highlighted.

Redouan Bshary

Professor in Behavioural Ecology, Institute of Biology, University of Neuchâtel

A comparative approach to the study of cooperation for direct benefits



Evolutionary minded biologists, economists and social scientists are all highly interested in cooperation for mutual benefits. Importantly, there is an ever increasing exchange of concepts and data. This is because while pair-wise cooperation is widespread in nature, humans excel at cooperating with strangers on large scales. One key question of

interdisciplinary interest is therefore to what extent human cooperation is similar/different to cooperation in other species.

Biologists can contribute the comparative approach to improve our understanding of human cooperation. However, a successful dialogue between disciplines warrants careful consideration of terminology in order to reduce mutual misunderstanding. I therefore highlight various issues regarding terminology. In the remainder of the talk I will use concrete research examples from our lab to highlight key avenues for future research.

Matthijs van Veelen

Professor of Evolution and Behaviour, Faculty of Economics and Business, University of Amsterdam

Evolution of cooperation: theory and empirics



Explanations for cooperation, altruism, and morality fall into three broad categories: population structure, repetition, and partner choice. That leaves us with a rather diverse collection of explanations, and we would like to turn to empirical evidence to determine which of those selective pressures have been relevant in shaping human cooperation. All three categories have complications of their own. For population structure – which subsumes kin- and group selection – “cancellation effects” complicate empirics.

Andy Radford

Professor of Behavioural Ecology, School of Biological Sciences, University of Bristol

Consequences of out-group conflict



Conflict is rife in group-living species and exerts a powerful selective force. In a wide range of taxa, from hymenopterans to humans, group members invest considerable defensive effort against individual intruders and rival groups seeking reproductive opportunities and resources. Compared with the extensive literature on the consequences of within-group conflict, the lasting impacts of conflicts with conspecific outsiders are poorly studied. I will begin by describing experimental work we have conducted on birds, fish and

mammals showing that out-group conflict can influence cooperative behaviour, within-group behavioural interactions and group movement patterns in the immediate aftermath. I will also provide evidence that such contests with rivals can affect group decision-making, cohesion and resource defence many hours later. I will then describe the theoretical and empirical work we are now conducting to uncover the effect of out-group conflict

on: (i) steroid hormones that underlie stress, social behaviour and reproduction; (ii) variation in reproductive success arising from maternal investment and offspring care; and (iii) the evolution of societal structure, punishment and cooperation among group-mates. The management and consequences of conflict are of major importance to science, human society and global politics, so our work has potential relevance not only to biology, but also to anthropology, economics, psychology, and the social and political sciences.

Early Career Award

Jorg Massen

Postdoctoral Researcher, Department of Cognitive Biology, University of Vienna

The Evolution of prosociality



By cooperating one can reach goals that could not be reached alone, yet it also involves an initial investment. Participants of a cooperative effort may try to maximize their net gain by minimizing their investment, while nonetheless reaping the benefits. Cooperation is thus prone to free-riders and will break down easily. Nevertheless, humans cooperate much and on enormous scales, partly due to their strong prosocial tendency. Such prosociality was long thought to be uniquely human, yet recent studies have also reported prosociality in, at least some, other animals. Currently, two of the major hypotheses stress the importance of a cooperative breeding lifestyle and strong social bonds in the evolution of prosociality.

Yet, these hypotheses are so far mainly tested in a limited number of primates, make strong general claims very difficult. In my talk, I will first explore how prosocial humans actually are in comparison to other animals, by reporting on several studies that test prosociality in humans in comparable contexts and set-ups as those used to test animals. Second, I will explore the current evolutionary hypotheses by presenting experimental studies on prosociality in a range of corvid species with different socio-ecological backgrounds. Finally, I will compare these corvid studies with studies on primates, and by transcending phylogenetic borders I aim to elucidate some of the socio-ecological selection pressure that may have led to the evolution of prosociality.

Presentation Abstracts

Elo-rating and emergent patterns in DomWorld

Lauren Seex, Rijksuniversiteit Groningen | lozseex@gmail.com

Charlotte K. Hemelrijk, Rijksuniversiteit Groningen

Dominance interactions are increasingly acknowledged to structure social complexity in primates. This structuring effect is clearly shown in an agent based model, DomWorld. Although DomWorld only comprises of grouping and self-reinforcing effects of competitive interactions, many complex patterns of social interaction emerge, such as grooming reciprocation and reconciliation. The representation of self-reinforcing effects in the model has been critiqued for leading to hierarchies that are too unstable. In empirical studies of primates, Elo-rating describes the self-reinforcing effects sufficiently. Therefore, it may also solve the unstable hierarchy in DomWorld. The aim of this study is to investigate whether Elo-rating increases the stability of the hierarchy and whether it does not impair the emergence of patterns of social interaction. We show that indeed the dominance hierarchy is more stable. However, an adjustment of parameters was needed regarding the intensity of aggression (K) and the probability for rank reversals (λ). Most patterns of the former model emerge still. At high intensity of aggression, individuals groomed others of a similar rank and up the hierarchy, aggressed in a uni-directional way, reconciled with valuable partners and female dominance over males emerged, all of which resembles a despotic society. The dominance hierarchy was steeper and the group was sparser at high than at low intensity. At both intensities, individuals reciprocated grooming and showed conciliatory tendencies. We conclude that Elo-rating is suitable. Our results support the structuring effect of dominance interactions. We note that our adjustments of parameters of Elo-rating are probably relevant for empirical studies also.

If an animal could choose its fitness function, would it want one with a conscience?

Hannes Rusch, Philipps-Universität Marburg | hannes.rusch@tum.de

Eckart Voland, Justus-Liebig-Universität Gießen

The human conscience is an astonishing psychological mechanism, as it has the power to impose behaviors upon its bearers that do not serve their own immediate interests – behaviors such as self-denunciation, self- and ingroup-damaging honesty and high-cost altruism. To explain this phenomenon, it has been suggested that the conscience's function might be the protection of its bearers' long-term reputations against their own short-term interests, i.e. temptations. Here, we complement this 'social navigator'-explanation of the human conscience by rooting its development in childhood. We suggest that the conscience might have evolved in the context of parent-offspring conflict. We develop and analyze a game theoretic model which shows that the conscience can be conceived of as a mechanism effectively regulating intrafamilial helping behavior. Our theoretical suggestion has interesting implications for future research, as it yields testable predictions about correlations of intrafamilial obedience and conscientiousness in later life.

How has evolution shaped interdependent minds? Functional Interdependence Theory

Daniel Balliet, Vrije Universiteit Amsterdam | d.p.balliet@vu.nl

For humans, all social interactions are characterized by some degree of interdependence. This is the case now, and it has been the case for thousands of generations. Further, all such interactions are characterized by distinct types of interdependence, each of which can critically and uniquely influence how behavior unfolds within the interaction. Despite this, little is known about how people detect and respond to the nature of interdependence in any given interaction. We suggest that this gap can be filled by integrating two theoretical perspectives: Interdependence Theory (Kelley & Thibaut, 1978) and Evolutionary Psychology (Tooby & Cosmides, 2005). Interdependence Theory provides clues to the structure of interdependence in the Environment of Evolutionary Adaptedness and can thus provide insight into the workings of proximate psychological mechanisms (i.e., adaptations) that evolved to detect and respond to different types of interdependence. In turn, Evolutionary Psychology offers a framework for understanding the types of information processing mechanisms favored by selection under these recurring conditions. We synthesize and extend upon these perspectives to introduce a new theory: Functional Interdependence Theory (FIT). In this talk, I will outline the theory and some predictions, discuss the development of a new scale designed to measure how people think about their interdependence with others, and share some recent evidence in support of FIT.

Mapping interdependence in daily life

Catherine Molho, Vrije Universiteit Amsterdam | c.molho@vu.nl

Simon Columbus, Vrije Universiteit Amsterdam

Daniel Balliet, Vrije Universiteit Amsterdam

The structure of interdependence that humans face throughout situations in their daily lives can provide key insights into social behaviors, such as coordination, cooperation, competition, and aggression. Philosophers and scientists have long debated the nature of interdependence in human interactions—a debate that can be summarized by two broad perspectives. The first holds that ancestral human life was marked by fleeting relationships, conflicts of interest, and struggles for dominance, whereas the second paints a picture of ancestral interactions as intensely social, egalitarian, and focused on achieving mutual gain. Applied to modern times, these perspectives make different predictions regarding the prevalence of (a) mutual dependence, (b) conflicting versus corresponding interests, and (c) power asymmetries in social interactions. In two experience sampling studies ($N_s = 282$ and 278 ; $k = 7248$ and 6766 situations, respectively), we map the structure of interdependent situations people experience in daily life along these three dimensions. Further, we use two well-studied economic games—the Prisoner's Dilemma and the Stag Hunt—as models of conflict in the laboratory, and examine how daily life interactions compare to perceptions of these games. Our findings indicate that most situations that people experience in daily life involve moderately high interdependence and equal power. Further, outright conflict seems rare; most situations involve relatively corresponding interests that result in mutually beneficial outcomes. Thus, in terms of conflict, daily situations more closely resemble a Stag Hunt rather than a Prisoner's Dilemma, suggesting that the former should be applied as a model of daily life.

Coordinating decisions for cooperation: A comparative perspective

Shona Duguid, Max Planck Institute for Evolutionary Anthropology | shona_duguid@eva.mpg.de

One of the challenges of cooperation is to coordinate decisions with others. Even when interests are aligned, this may not be a trivial task. Recent theoretical accounts have proposed that humans have evolved unique skills for coordinating decisions and actions with others in the pursuit of common interests. We tested this hypothesis using a comparative approach; comparing the coordination skills of humans to our closest living relatives, chimpanzees and bonobos. Apes, like humans, coordinate their actions in a variety of contexts including group hunting, territory defence, and joint travel. Across several experiments, we presented dyads of each species (in this case children and captive apes) with different coordination problems. Each of these problems is instantiated as a foraging task that requires coordination of decisions but also of actions in time and space in order to be more similar to the coordination problems that chimpanzees would face in the wild. Combining the findings across tasks, a picture emerges of the relative coordination skills of these two species. While chimpanzees are able to coordinate successfully to a certain extent in all tasks, the way they do so differs markedly from humans. By 4 years of age children have a greater range of coordination strategies available to them that allow them to coordinate flexibly and efficiently across various types of coordination problems. This is particularly apparent when comparing the ways both species use communication to solve these problems and points to potential limitations of coordination and thus cooperation in chimpanzees.

Shifts in the biological market of the marine cleaning mutualism caused a decline in a cleaner wrasse's sophisticated strategies

Zegni Triki, Université de Neuchâtel | zegni.triki@unine.ch

Redouan Bshary, Université de Neuchâtel

The marine cleaning mutualism involving the cleaner fish *Labroides dimidiatus* provides a model system to study the potential links between cooperation and cognition. Cleaners are known for their sophisticated social strategies during interactions with 'client' reef fishes, raising questions about the underlying cognitive processes. Recent extreme weather events at Lizard Island, Great Barrier Reef allowed us to test how changes in supply and demand affect the cleaners' performance in laboratory cognition experiments: cyclones and El Niño reduced cleaner densities by 80%, disproportionately to the reduction in client densities. We found a significant decline in the ability of cleaners to manage their reputation and to learn to prioritise ephemeral food sources to maximise food intake in laboratory experiments. In other words, cleaners failed to display the previously documented strategic sophistication that made this species a prime example for an intelligent fish. It turned out that in nature, client demand for cleaning had increased and clients were more willing to wait and allow inspection. Therefore, cleaners had apparently learned to adjust, abandoning the sophisticated strategies that would have been needed to solve the experimental tasks. In line with this interpretation, performance improved again in 2017, together with an increase in cleaner population densities. In conclusion, cleaner strategic sophistication is most likely based on associative learning according to the local cleaning market conditions.

Manipulating social relationships in vampire bats

Gerald Carter, Max Planck Institute for Ornithology | gerry@socialbat.org

In some animal societies, cooperative investments and returns involve enduring relationships that appear to integrate many interactions of different types and with multiple partners over time. Testing cooperation strategies therefore requires manipulating social relationships over extended periods. I review four ways that regurgitated food sharing and allogrooming in vampire bats can be manipulated in the short-term and long-term, allowing us to test the extent to which cooperative investments are based on returns. First, we fasted subjects and manipulated possible donors in two groups to test for short-term and long-term reciprocity as well as the 'social bet-hedging' hypothesis-- that unpredictable social environments favor investments in partner quantity versus quality. Bats did not decrease sharing towards bats that cannot reciprocate on three occasions, and a larger test of reciprocity is ongoing. Feeding kin yielded greater benefits per capita, but feeding nonkin appeared to create 'backup' partners, so nonkin feeding in previous years predicted how well a bat coped with the experimental removal of a key donor, as predicted by social bet-hedging. Second, intranasal oxytocin increased social grooming. Third, bats were more likely groom a partner in need, that is self-grooming or with wetted, disturbed fur. Fourth, we injected 13 bats with lipopolysaccharides (LPS), mimicking an infection, and they reduced their allogrooming, but reduced their self-grooming even more. Finally, our current ongoing work tracks how food-sharing bonds form between previous strangers housed together in captivity.

Partner choice in wild capuchin monkeys

Irene Godoy, Radboud University Nijmegen | irene.godoy@gmail.com

Capuchins are highly encephalized primates, who live in groups containing multiple generations of maternal and paternal kin, and who rely on allies to maintain their social standing within groups. Capuchins thus serve as valuable models for comparative study of cooperation in humans. Previous work has provided evidence that both dominance rank and relationship quality play a role in the decision rules capuchins use in their selection of coalition partners. However, these findings relied on data from only a single social group over a two-year period, during which kinship relationships were not well known. Thus, this study could not address the impact of kinship on cooperation, or the stability of preferences in partner choice. Here I present longitudinal data from 15 years of field observation on wild, white-faced capuchin monkeys (*Cebus capucinus*) from the Lomas Barbudal population in Costa Rica. Using data on 231 genotyped adult and subadult capuchins (1345 monkey-years) from 11 social groups, I report on the impact of dominance rank, relationship quality, and kinship on partner choice in coalition formation. With data on individuals available across multiple years, I also report on the maintenance/stability of partner preferences across time.

Targeted helping and mutualistic cooperation in captive chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*)

Suska Nolte, University of St. Andrews and Max Planck Institute for Evolutionary Anthropology | suska_nolte@eva.mpg.de

With Josep Call

Comparative studies investigating prosociality mostly focus on chimpanzees despite bonobos being our other closest living relative. These two species are known to be different on several types of behaviours such as social tolerance and stress reactivity, which have both been associated with prosocial behaviour. Therefore, examining species differences in response to prosocial tasks will deepen our understanding about the factors that influence tendencies to cooperate and informs about the evolution of unique forms of human cooperation. Six dyads of chimpanzees and bonobos were presented with an instrumental helping task to examine whether the helper of each pair transfers tools to a conspecific. In experiment 1, prosocial acts do not benefit the helper while in experiment 2 the helper could only obtain a reward by transferring the correct tool to the partner. Chimpanzees did not share tools with conspecifics in either experiment, with the exception of a mother-daughter pair, in which the mother shared a tool twice in experiment 1. In contrast, in experiment 1 all unrelated female-female bonobo dyads sometimes transferred a tool and the mother-daughter pair transferred consistently. The frequency of tool transfers increased substantially in bonobos when helpers were given an incentive in experiment 2. We found consistent transfers in all female-female bonobo dyads but none in unrelated male-female dyads. To understand the relationship between the behaviour of the recipient and transfers, we investigated several behaviours, such as requesting. This study supports the notion that bonobos have a greater ability to understand social problems and the collaborative nature of such tasks.

A general evolutionary framework for the role of intuition and deliberation in cooperation

Stephan Jagau, University of Amsterdam | s.d.jagau@uva.nl

Matthijs van Veelen, University of Amsterdam

In the experimental and theoretical literature on social heuristics, the case has been made for dual-process cooperation. Empirical evidence is thought to be consistent with the idea that people tend to be nice before thinking twice. A recent theoretical paper moreover suggests that this is also the type of dual process one would expect from evolution. In 'Intuition, deliberation, and the evolution of cooperation' by Bear and Rand (PNAS 113(4): 936–941), natural selection never favours agents who use deliberation to override the impulse to defect, while deliberation can be favoured if it serves to undermine cooperation in interactions without future repercussions. Here we show that this conclusion depends on a seemingly innocuous assumption about the distribution of the costs of deliberation, and that with different distributions, dual-process defectors can also evolve. Dual-process defectors intuitively defect, but use deliberation to switch to cooperation when it is in their self-interest to do so (that is, when future repercussions exist). The more general model also shows that there is a variety of strategies that combine intuition and deliberation with Bayesian learning and strategic ignorance. Our results thereby unify and generalize findings from different, seemingly unrelated parts of the literature.

Does wealth trigger spiteful rejection of unfair offers? A cultural evolutionary approach of China and the United States

Paul van Lange, Vrije Universiteit Amsterdam | p.a.m.van.lange@vu.nl

With Yi Ding, Junhui Wu, Tingting Ji, Xu Chen

What does it do to people when they are rich or poor? Do they differ in their responses to unfair treatment? For example, are the wealthy more or less likely to accept an unfair offer in an ultimatum game where it is costly to reject an unfair offer? How about when it is not costly to reject an unfair offer? In the present research, we measured manipulated wealth using a “lucky draw” game (Studies 2 and 3) to examine how wealth affects responses to unfairness in an ultimatum game (Studies 1–3) and a new game called the cost-free rejection game (CFRG, Study 3). Across three studies conducted in China, we found that wealthy people rejected an unfair offer (i.e., being offered 20% while the other kept 80% of the endowment) more frequently than the less wealthy, and that this tendency to reject unfairness was mediated by their increased feelings of entitlement. This suggests that the wealthy, or even people who temporarily perceive themselves to be wealthy, are more easily offended by unfairness than the less wealthy. We also present cross-national evidence, comparing China and the United States (Studies 4 and 5), replicating the above findings among the Chinese: Wealthy people rejected unfair offers more often than control or poor people. But in the United States sample, we find that poor people are ones that more likely to reject unfair offers than control or wealthy people. Findings are discussed from cultural evolutionary perspectives.

Visual art as an underlying mechanism of group mindedness and collective intentionality

Larissa Mendoza Straffon, University of Amsterdam | mslariss@hotmail.com

In this paper, I sketch a model that ties the origin of systematic visual art practices to the emergence of systems of cooperative systems of indirect reciprocity by 100,000 years BP. The establishment of exchange networks in the Late Pleistocene generated selection pressures to produce and invest in strategies of individual recognition and reputation-tracking in large non-kin groups. One of these strategies was the use of social markers, such as body decorations. By adopting personal ornaments as signals of identity, humans became able to manage a large number of relations allowing for new and more extensive forms of human cooperation, which in turn created a niche for new ways of communicating social identity. This proposal corresponds well with Tomasello’s two-stage model of the evolution of human cooperation and puts forward visual art behaviour as one of the factors that supported the development of group mindedness and collective intentionality and thus, of modern human culture.

Posters

“Proper” third-party punishment in fish

Mélisande Aellen, Université de Neuchâtel | melisande.aellen@unine.ch

With Nichola Raihani, Redouan Bshary

How nonverbal expressions and reputation drive cooperative decisions: A real-life interaction study

Friederike Behrens, Leiden University | f.behrens@fsw.leidenuniv.nl

Evolution of non-kin cooperation: social assortment by cooperative phenotypes in guppies

Josefine Bohr-Brask, University of Exeter | j.bohr-brask2@exeter.ac.uk

With Darren P. Croft, Mathew Edenbrow, Richard James, Robert Heathcote, Charles R. Tyler,

Patrick B. Hamilton, Indar W. Ramnarine, Torben Dabelsteen, Safi Kirstine Darden

Happiness promotes prosocial behavior toward strangers via perceived similarity between kin and non-kin

Minyoung Choi, Yonsei University | vhalminy@gmail.com

With Eunkook M. Suh

Repeated games with population structure

Stephan Jagau, University of Amsterdam | s.d.jagau@uva.nl

With Matthijs van Veelen

Does habitat use influence social behaviour and cognition in marine cleaning gobblers?

Renata Mazzei, Université de Neuchâtel | renata.mazzei@gmail.com

With Marta Soares, Redouan Bshary

That which we have in common: microbiota as a relevant index of group membership and social dynamics

Augusto J. Montiel Castro, Metropolitan Autonomous University | a.montiel@correo.ler.uam.mx

With Braulio Pinacho-Guendulain, Gabriela Bravo-Ruiseco, Gustavo Pacheco-López

Nestmate recognition and its role for cooperation in ants

Stefanie Neupert, University of Konstanz | stefanie.neupert@uni-konstanz.de

With Christoph J. Kleineidam

Encouraging pro-environmental behaviors through offspring appeals: a kin selection perspective

Gonzalo Palomo Vélez, Vrije Universiteit Amsterdam | g.f.p.v.palomovelez@vu.nl

With Jacek Buczny, Mark van Vugt

Does feeling powerful transform norms for fairness? An fMRI study

Loren Pauwels, University of Antwerp | Loren.Pauwels@uantwerpen.be

With Carolyn Declerck, Christophe Boone

An investigation into the effect of childhood socioeconomic background on trust: the mediating role of life-history strategies

Angelos Stamos, KU Leuven | angelos.stamos@kuleuven.be

Dynamics of cooperation in an iterated trust game: people just don't give up on untrustworthy game partners

Ilaria Torre, Trinity College Dublin | torrei@tcd.ie

Tracing the origins of language: syntax in common marmosets?

Maike Katharina Zemihn, Leiden University and Universidade Federal de Pernambuco | meike.zemihn@gmail.com

With Tonko W. Zijlstra, Esther Clarke, Carel ten Cate

Organising Team

The CBEN Conference 2017 is organised by Merel Burgering (Leiden University, Tilburg University, and Maastricht University), Simon Columbus (Vrije Universiteit Amsterdam), and Mariska Kret (Leiden University).

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CBEN

The Cognition, Behavior & Evolution Network (CBEN) unites scholars working in the fields of evolutionary psychology, behavioral ecology, human biology, primatology, and cultural evolution.

The aim of CBEN is to facilitate research and education in relation to the evolution of cognition and behavior. Its basis is in The Netherlands and Belgium, but we invite scholars from other countries to join us.

CBEN sponsors the annual CBEN Conference. Previous conferences were hosted at the University of Amsterdam (2015) and University of Antwerp (2016). In addition, CBEN also sponsors irregular events related to the mission of the network.

Find out more online: <http://www.cognitionbehaviorevolution.nl/>