



primate  
cognition



3<sup>rd</sup> Student Retreat of the  
Leibniz-ScienceCampus  
"Primate Cognition" &  
RTG "Understanding  
Social Relationships"

24-26 October 2017

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# Foreword

## **Dear participants of the Leibniz-ScienceCampus-RTG2070 Student Retreat 2017,**

We are pleased to welcome you to the 3<sup>rd</sup> Student Retreat, hosted jointly by the Leibniz ScienceCampus “Primate Cognition”, and the DFG Research Training Group 2070 “Understanding Social Relationships”. This retreat will offer us all the opportunity to share thoughts, ideas, advice and knowledge stemming from various fields, such as ecology, social behavior, communication, cognition and neuroscience. The “Waldschlösschen”, encircled by its enchanting autumnal forest, filled with seminar rooms and various spaces for social gatherings, brightened up by gardens and terraces, is the perfect location to overcome the challenge of interdisciplinarity and foster creativity.

The Research Training Group 2070, funded by the DFG, allows PhD students of the German Primate Center and the University of Göttingen to run their projects alongside various opportunities to learn and share knowledge across many disciplines. The Leibniz-ScienceCampus was founded as a joint research platform of the same institutions. Considering interdisciplinary dialogues as one of their key components, both the RTG 2070 and the Leibniz-ScienceCampus offer various means for scientists to exchange and cooperate, of which this retreat is a perfect example.

This year, in addition to the exciting opportunity to share and discuss individual projects in two poster sessions, students will take part in a workshop led by Valeska Russo and Lina Yassin in which they will learn how to manage their projects, find motivation and deal with procrastination and fear of failure. They will also have the privilege to listen to a talk and take part in a discussion with Jacinta Beehner (University of Michigan and current guest researcher of the DFG Research Training Group), about the publishing and reviewing process.

With this exciting three days in prospect, we would like to thank Rebecca Jürgens and Chris Schloegl for their untiring support in helping us throughout the organization of the retreat.

Finally, we would like to thank all of you for participating, and we very much hope that all the enlightening thoughts that will be shared during the retreat will create enough sparkles so as to last in our memories for a very long time.

Ben, Fede, Johanna & Sarah

# Venue

## The Academy “Waldschlösschen”

The “Waldschlösschen” is located in the middle of hilly woodlands 13 km southeast of Göttingen. It offers five living areas, seminar rooms and an educational program of roughly 180 seminars per year. The academy “Waldschlösschen”, founded in 1981, a legally responsible and non-profit making foundation since 2004, is acknowledged by the country of Lower Saxony as an adult education center entitled for financial help. Its educational program appeals to interested people from all parts of society. Its special profile is rooted in the specially marked seminars for gays and lesbian, offers for HIV-positive people and those affected by AIDS and their life partners, advanced training courses on AIDS, social and sexual pedagogical topics, language courses as well as further training parallel to a job. “We are a meeting place, which feels itself responsible for the humanisation of society.” This is the ideal of the academy “Waldschlösschen” and points out the direction of the understanding of its educational work. It is carried by the belief that all humans have equal rights, the solidarity with disadvantaged, the acceptance of different ways of living and sexuality, the curiosity on the “unknown as enrichment”. They offer education to strengthen identity and confidence and at the same time reflect social dependence; they want to develop social and political commitment to shape and change the society (source: Akademie Waldschlösschen @ <https://www.waldschloesschen.org/>).



## Practical information

- We booked double and triple rooms for us to stay at.
- You do not need to bring bed linen and towels; they will be provided by the Waldschlösschen. Please feel free to bring games, DVDs and things alike for the evenings.
- As the Waldschlösschen is located in the middle of nowhere, there will be only little or no network coverage. However, there will be WLAN.
- The Student Retreat will be fully covered by the Leibniz-ScienceCampus including transportation, room and board. We only kindly ask you to pay for alcoholic drinks yourself.

# Time Schedule – Tuesday, 24 October 2017

<i>09:00</i>	<i>Meeting at Göttingen train station</i>
<i>09:30 – 10:00</i>	<i>Arriving at Waldschlösschen + setting up first half of posters</i>
<b>10:00 – 10:30</b>	<b>Introduction</b>
<b>10:30 – 11:15</b>	<b>Poster session I</b> (Lena, Franzi B., Fede, Charlotte, Delphine, Sarah E., Lauriane, Wiebke, Franzi H., Julia, Alexandra)
<i>11:15 – 11:30</i>	<i>Coffee break (setting up second half of posters)</i>
<b>11:30 – 12:15</b>	<b>Poster session II</b> (Kristina, Nadja, Davide, Sarah P., Johanna, Vivien, Jana, Alan, Ben, Simon)
<i>12:15 – 13:00</i>	<i>Check-in</i>
<i>13:00 – 14:00</i>	<i>Lunch</i>
<b>14:00 – 15:00</b>	<b>Workshop: “Project Management + Dealing with failure and procrastination”</b>
<i>15:00 – 15:15</i>	<i>Coffee break</i>
<b>15:15 – 17:15</b>	<b>Workshop</b>
<i>18:30</i>	<i>Dinner</i>
<i>20:00</i>	<i>Social program</i>

# Time Schedule – Wednesday, 25 October 2017

<i>08:00 – 09:00</i>	<i>Breakfast</i>
<b>09:00 – 11:00</b>	<b>Workshop</b>
<i>11:00 – 11:15</i>	<i>Coffee break</i>
<b>11:15 – 13:00</b>	<b>Workshop</b>
<i>13:00 – 14:00</i>	<i>Lunch</i>
<b>14:00 – 15:00</b>	<b>Workshop</b>
<i>15:00 – 15:15</i>	<i>Coffee break</i>
<b>15:15 – 17:00</b>	<b>Workshop</b>
<i>18:30</i>	<i>Dinner</i>
<i>20:00</i>	<i>Social program</i>

# Time Schedule – Thursday, 26 October 2017

<i>08:00 – 10:00</i>	<i>Breakfast</i>
<b>10:00 – 11:00</b>	<b>Jacinta Beehner “Publishing and reviewing process”</b>
<i>11:00 – 11:15</i>	<i>Coffee break</i>
<b>11:15 – 13:00</b>	<b>Jacinta Beehner “Publishing and reviewing process”</b>
<i>13:00 – 14:00</i>	<i>Lunch</i>
<i>14:00 – 15:00</i>	<i>Check-out</i>
<i>15:00</i>	<i>Leaving</i>

# Workshop – Project Management & Dealing with failure and procrastination

The aim of the workshop is to provide students with means to help them cope with the challenges and frustrations that PhD projects often create. Although the final terms of the workshop will be worked out in coordination with the participants, the topics covered can include:

- How can I motivate myself and others?
- What do I do if everything goes wrong, how do I deal with failure?
- How do I overcome my one weaker self?
- How can I present myself to others (contents, rhetoric, speech training)?
- How can I build a supportive network?

To address these questions, the coaches will offer group exercises and discussions, among other interactive methods. All materials will later be made available to the students.



# Abstracts

## POSTER SESSION I

### **THE EFFECTS OF CATEGORY CURIOSITY AND DENSITY ON EARLY WORD LEARNING**

*Lena Ackermann, Robert Hepach and Nivedita Mani*

Does children's curiosity for a particular category (e.g., animals, vehicles) impact their learning of novel members of these categories? If so, then not only would curiosity impact their learning of novel members, but might also influence the semantic density of categories in the child's vocabulary: Children should know more words in the categories they are more interested in. In an ongoing study, we investigate the influence of category curiosity and category density on the acquisition of new word-object-associations. 30-months-olds ( $n=22$ ) were, first, presented with 16 familiar objects from two broad ( $M = 31$  members) and two narrow ( $M = 11$  members) categories and heard their corresponding labels while their pupil dilation response was measured as an index of their interest in members of the different categories. Next, they were exposed to novel members from each of the four categories and tested on their learning of the new word-object-associations. In addition, a vocabulary questionnaire and a questionnaire on the child's interests in different category members were administered. Analyses indicate that children are able to learn novel members from both broad and narrow categories, but learning is more robust in the broad categories. This suggests that children are able to leverage their existing semantic knowledge to learn new words, which is in line with previous research. Ongoing pupil dilation analyses will then examine the extent to which learning and category size is impacted by children's inherent curiosity in objects from a particular category.

## **LIKE LITTLE KIDS? ADULTS' SELECTIVE TRUST DECISIONS UNDER LIMITED COGNITIVE RESOURCES**

*Franziska Brugger, Jonas Hermes, Tanya Behne and Hannes Rakoczy*

Children sometimes employ rational, trait-based strategies in their selective trust decisions and sometimes more global, heuristic strategies. In a within-subject-design, Hermes et al. (2017) found that preschoolers have both kinds of strategies within their repertoire but engage them differentially as a function of context and task demands. Why do children use different strategies at different times for different tasks? One possibility is that this pattern of performance might be best explained by some kind of dual process account which may take the following basic form: There would be fast, implicit, default Type I-processes, based on heuristics of halo-like overall impression formation. The results of these Type I-processes may, under certain circumstances, be overruled by slower, explicit and more demanding Type II-processes that are based on rational inferences. The aim of the present study was to test the predictions of a dual process account on selective trust in adults, directly comparing the results to those Hermes et al. (2017) found with children. We tested adult students (N=120) from Göttingen University in a selective trust paradigm similar to that in Hermes et al. (2017). First, they were familiarized with pairs of models that either differed in their degree of competence within one domain (strong vs. weak or knowledgeable vs. ignorant) or were both highly competent, but in different domains (strong vs. knowledgeable). In the test trials, adults chose between the models for strength- or knowledge-related tasks. Second, we used logical syllogisms to control for the effect of three cognitive load conditions. We varied cognitive load in three conditions: i) a secondary task, ii) time pressure, or iii) no restrictions. We made the following predictions: (1) In cases where Type I-processes yield unique yet erroneous solutions, (a) adults will be more proficient at overriding the default outputs of Type I-processes with more rational Type II-inferences than children and (b) even adults will fall back on Type I-processes under conditions of high cognitive load. (2) In cases where heuristic Type I-processes provide no unique solution, more rational Type II-decisions are to be expected both in children and adults under normal conditions. Preliminary data from the time pressure condition suggest that adults do not fall back on children's performance, but engage in rational Type II-strategies.

# MALE–MALE RELATIONSHIP DYNAMICS AND THE ROLE OF RITUALIZED GREETING BEHAVIOR IN WILD GUINEA BABOONS (*PAPIO PAPIO*) IN THE NIOKOLO-KOBA NATIONAL PARK, SENEGAL

*Federica Dal Pesco and Julia Fischer*

Ritualized greetings between two individuals are exchanges of non-aggressive signals with varying degrees of intensity, involving potentially harmful behaviors such as genital fondling. Although these are one of the most striking male social interactions, their function is still a matter of debate. While male–male greeting behavior occurs in several species, the intense behavioral repertoire described in the genus *Papio* is rare. We investigated the function of male–male ritualized greeting behavior in wild Guinea baboons. This species lives in multilevel societies with high spatial tolerance, where adult males maintain affiliative relationships with preferred male partners whom they support in coalitions, regardless of kinship, and where greetings are the most frequent social interactions between males. We examined the social behavior of 24 adolescent and adult males, to test whether greetings are affected by relationship quality and/or aggressive context. We recorded social behavior continuously during focal observations (>800h), spatial proximity through scan sampling (>6200 scans), and aggression ad libitum. We found that neither dyadic affiliative relationships nor aggressive contexts predict greeting rate and that spatial proximity (>1m-5m) is the most important predictor of greeting occurrence. Interestingly, both affiliative and non-affiliative male dyads show high greeting rates, indicating that greetings may have different functions depending on dyadic relationship type. Further research will examine whether greetings are used to reduce tension in response to spatial proximity or to delineate social levels. We tentatively suggest that greeting behavior function varies with the social system of the species, specifically the degree of male aggressiveness.

## **DON'T WORRY, BE HEALTHY? SOCIALITY, STRESS AND INDICATORS OF HEALTH IN WILD REDFRONTED LEMURS (EULEMUR RUFIFRONS)**

*Charlotte Defolie, Michael Heistermann, Claudia Fichtel and Cornelia Kraus*

Living in group comes with costs and benefits at the individual level. In particular, social relationships can have a profound impact on the physiological stress response, which in turn plays a pivotal role in mediating the link between sociality and health. Indeed, stress is an adaptive mechanism to cope with day-to-day challenges, but it can affect health via its complex interaction with the immune system and increase susceptibility to or severity of diverse parasite infection. On the one hand, social relationships can be a source of stress for individuals, as they have to deal with dominance and unpredictable changes in their social network. On the other hand, social support and strong social bonds can reduce the adverse effects of stress and improve an individual's health and fitness. While the connection between stress and parasite infection has been explored in some species, the role sociality plays in this relationship is often overlooked and only a few studies have attempted to examine the interrelationships involving all three factors. In this context, we investigated how sociality, physiological stress and parasite infection are associated in wild redfronted lemurs (*Eulemur rufifrons*) in Kirindy forest, Western Madagascar. Their social system deviates from that of the better-studied anthropoid species, with high levels of affiliation and social tolerance but also quite regular group takeovers and evictions upsetting social stability. We observed 32 adult individuals in five groups over a period of 18 months and collected regular fecal samples for glucocorticoid, testosterone, estrogens and parasitological analyses. We specifically explored the effect of ecological and social stressors, quality and quantity of social bonds and host sex hormone levels on susceptibility to parasite infections.

## **THE ROLE OF RELATEDNESS IN THE SOCIAL RELATIONSHIPS OF ASSAMESE MACAQUES AT PHU KHIEO WS**

*Delphine De Moor, Oliver Schülke and Julia Ostner*

Kin selection theory predicts that cooperation between closely related individuals will evolve if the costs to the donor are smaller than the benefits to the recipient multiplied by their coefficient of relatedness, i.e. 50% between a parent and an offspring and 25% between half-siblings. Positive kin biases in behavior are paramount among primates but the vast majority of studies considered maternal relatedness only and focused on the philopatric sex. In this project we assess both maternal and paternal kin biases in the behavior of both adult female and adult male Assamese macaques (*Macaca assamensis*). Since paternal relatedness is difficult to assess in promiscuously mating species, animals may use age similarity as a proxy, provided that male reproductive skew is high and one or a few males sire all the offspring of a given mating period. Our previous research has established that male reproductive skew is low in Assamese macaques at Phu Khieo Wildlife Sanctuary, Chaiyaphum Province, so we predict that female social relationships are affected by strong maternal kin biases only. Male Assamese macaques are unusual among dispersing male primates because each male forms strong affiliative relationships with a few of his competitors in the group. In this project we will investigate the relative roles of familiarity and maternal and/or paternal relatedness in predicting the strength of male social relationships. Preliminary results presented at the Thai Wildlife Seminar 2015 suggest that males typically disperse in teams from their natal group before they reach sexual maturity. Fully adult males further migrate repeatedly between groups so that males may end up living in the same group with a number of familiar and/or related males. The behavioral data needed for the quantification of social relationship strength and migration decisions is being collected since 2006 on now four groups of unprovisioned Assamese macaques at the Huai Mai Sot Yai study site. We will build upon previous microsatellite analyses for paternity exclusion by establishing additional markers for this population and will use a maximum of pedigree and age information to reconstruct dyadic relatedness between all males and females in our study groups. With these data we will be able to test our own hypothesis about the role of paternal relatedness in shaping variation in female social relationships across different species of macaques and to assess whether the close affiliative relationships observed among male Assamese macaques are equivalent to human friendships in the sense that they develop between unrelated males.

## EARLY WORD AND ACTION LEARNING

*Sarah Eiteljörge, Maurits Adam, Birgit Elsner and Nivedita Mani*

Successful communication often involves comprehension of both spoken language and observed actions. While even very young infants can learn associations between actions and objects (Hunnius & Bekkering, 2010) as well as between words and objects (e.g., Bergelson & Swingley, 2012; Mani & Plunkett, 2008), the extent to which these domains co-develop and potentially influence each other remains as yet unclear. In the current, still on-going studies, we look at children's preferences of words and actions and how action consistency can potentially influence word learning. In the first study, 12-, 24-, and 36-month-olds as well as adults participated in an eye-tracking paradigm consisting of a training and a test phase. In eight training trials, participants were presented with two novel objects presented in motion accompanied by a novel label (e.g., blue object called "*Tanu*" moving up and down). Across twelve test trials, they were then tested on their learning of the different association dyads (word-object, action-object, word-action). In addition, vocabulary and fine motor skills were administered offline. In the second study, 18-, 30- and 42-month-olds and adults were tested on their word learning skills while the novel objects performed either always the same (*same actions* group) or always different actions (*different actions* group). Preliminary analyses indicate that learning in both studies is only very subtle if present at all. Only the adults show strong learning in all conditions in both studies. Nonetheless, there seems to be a developmental trend in the first study indicating that the older age groups learn words (but no actions). Similarly, in the second study, young children only learn in the *same actions* group whereas older children also learn in the *different actions* group, hinting towards an influence of action consistency which changes across the ages as children become experts in word learning. Overall, these studies tentatively suggest that young children rather learn words than actions in our paradigm but that action presentations still influence word learning.

## **DO MALE GUINEA BABOONS KEEP TRACK OF THE MALE-FEMALE ASSOCIATIONS OF THEIR OWN PARTY?**

*Lauriane Faraut and Julia Fischer*

Previous studies on social knowledge have indicated that the highly despotic chacma baboon (*Papio ursinus*) track interactions between third parties while other, more tolerant species such as geladas (*Theropithecus gelada*), do not. The aim of our study is to investigate the social monitoring abilities of a tolerant member of the genus *Papio*, the Guinea baboon (*P. papio*). Guinea baboons live in a multi-level society with One-Male-Units (OMUs) at the base. Females are known to freely transfer between males and we did not observe mate guarding. We presented OMU (n=16) and non-OMU males (n=9) living in the Niokolo Koba National Park, Senegal, with grunt sequences simulating an affiliative interaction between a male and a female. The ‘violation-of-expectation’ paradigm (test condition) simulated the interaction between an OMU male and a female that was associated with another male. In the control condition, the sequence simulated an interaction between male and female from the same OMU. We predicted that males would respond more strongly to the test condition. Surprisingly, preliminary analyses indicate that subjects looked longer towards the loudspeaker in the control condition than in the test condition regardless of the types of male (OMU or non-OMU males). Moreover, subjects’ social interactions following the playback experiments were not influenced by the conditions displayed. We will discuss the findings with regard to the male status, the level of tolerance of this species and compared those results with the literature on familiarity-novelty in humans.

## **ASSOCIATED MOTIVATIONAL SALIENCE IMPACTS EARLY SENSORY PROCESSING OF HUMAN FACES**

*Wiebke Hammerschmidt, Holger Sennhenn-Reulen and Annekathrin Schacht*

Facial expressions of emotion have an undeniable processing advantage over neutral faces, discernible both at behavioral level and in emotion-related modulations of several event-related potentials (ERPs). Recently it was proposed that also inherently neutral stimuli might gain salience through associative learning mechanisms. The present study investigated whether acquired motivational salience leads to processing advantages similar to biologically determined origins of inherent emotional salience by applying an associative learning paradigm to human face processing. Participants (N=24) were trained to categorize neutral faces to salience categories by receiving different monetary outcomes. ERPs were recorded in a subsequent test phase consisting of gender decisions on previously associated faces, as well as on familiarized and novel faces expressing happy, angry or no emotion. Previously reward-associated faces boosted the P1 component, indicating that acquired reward-associations modulate early sensory processing in extrastriate visual cortex. However, ERP modulations to emotional - primarily angry - expressions expanded to subsequent processing stages, as reflected in well-established emotion-related ERPs. The present study offers new evidence that motivational salience associated to inherently neutral stimuli can sharpen sensory encoding but does not obligatorily lead to preferential processing at later stages.



## **INDIVIDUAL DIFFERENCES IN COGNITIVE ABILITIES IN A SMALL, WILD PRIMATE, THE GREY MOUSE LEMUR (*MICROCEBUS MURINUS*)**

*Franziska Hübner, Claudia Fichtel and Peter M. Kappeler*

Animals differ in their cognitive abilities not only on the species level, but also on the individual level. However, the causes and consequences of this individual variation remain poorly understood, even though this information could shed light on the evolution of cognition. In order to better understand the various proximate factors influencing individuals' cognitive performance, we studied the link between cognitive abilities and personality traits, body condition, sex and age in a small, wild primate, the grey mouse lemur (*Microcebus murinus*). During short-term captivity, we tested up to 90 individuals in two personality tests, an openfield and a novel object test, and two cognitive tasks, a novel problem-solving task and a spatial learning test. We found that neophilic subjects and individuals with lower body condition, i.e. that were more food-motivated, were faster problem solvers and more juveniles solved the problem successfully. By contrast, during spatial learning, age and body condition had no effect on subjects' performance but neophilic individuals made more errors. This opposing effect of personality on cognitive performance might indicate a link between neophilia and a fast cognitive style that could lead to a speed-accuracy trade-off. Furthermore, our results indicate that, especially when testing wild animals, feeding motivation and neophilia can influence test results and highlight the need to control for these factors in order to better characterize individual differences in cognitive abilities in the wild.

## **FERTILE WOMEN EVALUATE MALE BODIES AS MORE ATTRACTIVE, REGARDLESS OF MALES' MASCULINITY: EVIDENCE FOR A LIBIDO SHIFT INSTEAD OF GOOD GENES SEXUAL SELECTION**

*Julia Jünger, Tobias Kordsmeyer and Lars Penke*

Menstrual cycle shifts in females' mate preferences have been documented for several physical and behavioral traits in men. Recent research indicates that, at peak fertility, women tend to prefer males with characteristics that reflect good genes for short-term sexual relationships. However, existing findings were criticized for methodological flexibility and failing attempts to replicate the results. In a large pre-registered within-subjects study across two menstrual cycles, we investigated cycle shifts in females' mate preferences on masculine bodies. Using a large set of natural stimuli, we found that, when fertile, women's ratings of males' bodies increased for sexual as well as for long-term attractiveness. In both cases, these effects were partially mediated by the estradiol-to-progesterone-ratio and could only be found for women in relationships, not for singles. Contrary to other findings in the literature, males' masculine traits did not interact with these cycle shifts. The implication of these results for estrus theories and methodological recommendations for future research will be discussed.

## LINGUISTIC METHODS FOR INVESTIGATING NEURAL SPEECH MOTOR PROCESSES

*Alexandra Korzeczek and Martin Sommer*

Speech fluency disorders such as developmental and acquired stuttering manifest as dysfunctions of the speech motor domain. Research in these disorders meets the challenge to differentiate speech motor from higher linguistic processes. To get an unbiased insight into stuttering symptoms and their underlying neurophysiological mechanisms, the linguistic stimulus material needs to be well controlled and balanced. Here we present a high quality approach to generate a list of 300 three- and four- syllabic nonwords for prospective speech motor planning studies in adults who stutter. Syllables and their frequencies were derived from the German CELEX word form database (Hoffmann et al., 2008). We excluded syllables representing German words, to avoid interferences such as semantic and lexical associations on the neurophysiological processing of speech motor planning. Further, the lists of high and low frequency syllables were matched for phonetic complexity and the age of acquisition of their phonemes. Nonwords started always with syllables containing labial phonemes such as /b/, /p/, /f/ or /v/ at the onset position to enable the exact marking of speech onset derived from the motor evoked potentials of the lips (McArdle et al., 2009). For composing the syllables into high and low frequent nonwords, we generated a Matlab script including German phonetic rules. Again nonwords which also represented a German word were excluded. In total 150 low frequent and 150 high frequent nonwords were extracted. Due to the inherent non-uniform distribution of phonetic complexity within high and low frequent syllables, only 78 high frequent syllables in initial position were matchable to low frequent syllables. Hence, we randomly selected 76 high and low frequent syllables and duplicated them. Pilot studies will validate the two lists of nonwords for the following criteria: comparable accuracy of pronunciation, reading difficulty and the evocation of stuttering symptoms.

**VISUAL MISPERCEPTIONS IN PARKINSON'S DISEASE**

*Kristina Miloserdov, Carsten Schmidt-Samoa, Christiane Anne Weinrich, Katrin Bürk, Claudia Trenkwalder, Mathias Bähr and Melanie Wilke*

Patients with Parkinson's disease (PD) frequently suffer from visual misperceptions and hallucinations (VH), which are difficult to objectify. In the current study we aimed to develop an objective perceptual measure that discriminates between PD patients with (PD-VH) and without hallucinations (PD-nonVH). Twenty-two non-demented demographically matched patients with PD (11 PD-VH and 11 PD-nonVH) and 16 healthy controls (HC) were tested. PD groups were also matched for clinical variables such as disease duration, dopaminergic medication and motor scores. Participants underwent testing with a dynamic image recognition task entailing faces, cars or scrambled images. In order to evaluate potentially different contributions of pre- vs. conscious visual processing, images were masked with continuous flash suppression (CFS) in half of the trials. PD-VH patients exhibited significantly higher proportions of erroneously detected faces or cars in scrambled images. 2) Compared to healthy controls, PD-VH and PD-nonVH patients showed higher intra-individual variability in recognition times. 3) Discrimination between PD-VH and PD-nonVH patients was achieved based on individual perceptual error scores that included category confusions, misses and false real image detection in scrambled images in the non-CFS condition. We conclude that our task provides a novel tool to objectively assess and quantify visual misperceptions in PD and to discriminate between PD-VH and PD-nonVH patients. Furthermore, our results suggest that impaired stability of information processing might contribute to the perceptual deficits in PD patient.

## **ADVICE TAKING IN 4 TO 6 OLD CHILDREN**

*Nadja Miosga, Christin Drescher, Thomas Schulze-Gerlach, Stefan Schulz-Hardt and Hannes Rakoczy*

Children are born into a complex world. To become effective social agents they have to acquire extensive knowledge, most of it by testimony of others. But not all information is of the same quality and worth considering to the same extent. Developmental research on selective trust has shown that children acknowledge this fact and learn new information selectively (Harries & Corriveau, 2011). But little is known on how children revise their existing beliefs, which is more complex than accepting knowledge to acquire a new belief.

In the current study we adapted for children a method used by social psychologist, the “judge-advisor system” (JAS; Sniezek & Buckley, 1995). In a JAS, a judge makes an initial judgment in a decision task, receives advice from an advisor and then makes a final judgment. We presented 4- to 6-year-olds (n=43) with a visual perception task differing in difficulty depending on whether one had good or poor visual access. There were three conditions: (1) the child was better informed, (2) the advisor was better informed and (3) both were equally poorly informed.

Results revealed that children’s advice taking is rational in the sense of being sensitive to their own epistemic situation (the better the child’s visual access, the less advice is being taken). But this rationality is limited by the insensitivity to the advisor’s epistemic situation (children did not differentiate between well and poorly informed advisors). Whether this reflects metacognitive or source monitoring limitations, for example, is currently being investigated in follow-up studies.

## **GROUP PROGRESSIONS IN TRAVELLING GUINEA BABOONS (PAPIO PAPIO)**

*Davide Montanari, Julia Fischer and Dietmar Zinner*

When social groups travel, they often organize themselves in specific patterns, e.g. older, more experienced or high-ranking individuals may take the front positions to lead the group or larger and stronger individuals may cover the most risky positions, near the front and the rear. Little is known about patterns of group progression in multi-level societies, however. In such a system individuals need to balance the interest of maintaining spatial cohesion within their subgroup with overall group movement. Guinea baboons live in a multi-level society, with high socio-spatial tolerance and no linear dominance hierarchy among males. The basal level of the society is the reproductive unit (one-male unit, OMU), which consists of one male with affiliated females. Several OMUs aggregate in a party, which includes also males without affiliated females, and 2-3 parties form a gang. We predicted that adolescent and adult males who are not associated with a female would be found more likely in front and rear positions. Because OMU males need to preserve spatial cohesion with their unit members, they should be more frequently found in central positions, along with females and their offspring. We studied 100 events of single line travel progressions of habituated Guinea baboons in the Niokolo-Koba National Park, Senegal, where potential predators like lions, leopards, hyenas and wild dogs can also be found. Preliminary results showed that OMUs remained spatially cohesive and that front positions were mainly occupied by adult males. There is considerable variation in the identity of the animals found in the front from day-to-day. The function of the unaffiliated males in group progression and predator detection will be discussed.

## **SAMPLING THE PRESENT TO GUIDE FUTURE CHOICES IN LONG-TAILED MACAQUES**

*Sarah Placì, Hannes Rakoczy and Julia Fischer*

Nonhuman primates have to make choices concerning their conspecifics: who is a good coalition partner, who provides reliable information? There are indications that they keep track of others' past reliability in cooperating or providing information, to motivate future decisions, similar to how human children monitor informants' reliability to build up trust. However, it is not known whether such monitoring would keep count of relative rather than absolute frequencies of behaviors, and thus, be probabilistic. Here, we presented captive long-tailed macaques, *Macaca fascicularis*, with a task in which they could monitor numbers of rewards obtained for touching different objects in a sampling phase, in order to increase their chances of getting a reward in a test phase. In the sampling phase, monkeys were presented four or ten times with a first object, and then four or ten times with a second object. They would always obtain proportionally more rewards when touching one object rather than the other. In the test phase, both objects were presented simultaneously, and subjects had to choose between them. The frequency of being rewarded for one object in the sampling phase (condition I: 10/10 vs. 4/10; condition II: 8/10 vs. 4/10; condition III: 4/4 vs. 4/10) was predictive of the likelihood to be rewarded for choosing the same object in the test phase. Preliminary results suggest that some individuals might keep track of relative frequencies of rewards in the sampling phase, even with only few sampling trials, to choose the more reliable object in the test phase.

## **EMERGENCE OF LEADERSHIP: PREDICTING LEADERSHIP INITIATIVE AND FOLLOWERSHIP FROM INTER-INDIVIDUAL DIFFERENCES**

*Johanna Prüfer, Andreas Mojzisch and Stefan Schulz-Hardt*

In groups without a formally assigned leader, one group member usually takes the lead. Past research focused on perception-based assessment of emergent leadership while neglecting whether the emergent leader was actually followed. A new approach to emergence of leadership is proposed. It differentiates the concept into leadership initiative and followership. The current study aims at identifying inter-individual differences predicting leadership initiative and followership behaviorally as well as including new predictors. For this purpose, 396 students participated in groups of four in a correlation study working on diverse estimation tasks (e.g. estimating a person's body height, or the amount of smarties in a jar). Consistent with previous research, identified predictors for leadership initiative include intelligence, extraversion and conscientiousness. Currently, a second study is conducted to replicate the identified traits in a more realistic group setting, including a group discussion.



## **“I JUST LEARN WHAT I WANT” – DOES MOTIVATION INFLUENCE LANGUAGE ACQUISITION?**

*Vivien Radtke, Robert Hepach and Nivedita Mani*

Much is known about extrinsic factors influencing language acquisition but little is known about the underlying motivations and emotions involved. In an ongoing study (n= 12) we are investigating the change in body posture and pupil dilation depending on the child's ability to learn new object- word pairs within a cross situational word learning paradigm. Three to four year old children are presented with a video showing 6 new word-object pairs. Each slide presents 2 new objects and words. Over the time of the video children can learn which word represents which object. In a test-phase we measure the proportional target looking to investigate if the child was able to learn the word-object combination, by just naming one of two objects (design see Smith and Yu 2008). We are interested in the initial emotional state of the children and how it influence their ability to learn. Therefore we record the pupil dilation before and after each training- and test- video. Furthermore we want to investigate if children's body posture - measured by changes in their postural elevation using depth sensor imaging technology - is affected by their ability to learn or not. (For detailed description of the methods see Hepach et al. 2015).

## **THE EFFECT OF FINANCIAL INCENTIVES ON THE FIRST MOVER ADVANTAGE IN NEGOTIATIONS**

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In negotiations, the first movers claim more value because their initial offer serves as an anchor that influences the other party (i.e. Galinsky & Mussweiler, 2001, JPSP). We hypothesized that the first mover advantage is reduced when one party of the dyad receives performance-related bonus payment, as participants should be highly motivated to adjust away from the anchor and to negotiate in their favor when financially incentivized. Preliminary data suggests that the financial incentive outweighed the first mover advantage. In line with our hypothesis, second movers that were incentivized claimed more value than their counterparts.

## **INTERACTION OF OXYTOCIN AND SOCIAL SUPPORT IN THE DOWNREGULATION OF GLUCOCORTICOID LEVEL FOLLOWING A STRESSFUL EVENT IN MALE BARBARY MACAQUES**

*Alan V. Rincon, Oliver Schülke, Michael Heistermann, Tobias Deschner and Julia Ostner*

Stressful events activate the hypothalamic-pituitary-adrenal (HPA) axis and lead to glucocorticoids (GC) being released into the bloodstream. After cessation of the stressor, an individual benefits from GC levels returning back to baseline quickly. One proposed mechanism in the downregulation of GCs is oxytocin (OT) release, as OT inhibits further HPA axis activity. Since positive social interactions with a bonded social partner releases OT, engaging in such interactions after a stressful event should lead to a faster downregulation of GCs in comparison to individuals not engaging in affiliative interactions with a bonded partner. Studies assessing the interaction between GC and OT levels following stressful events under natural conditions are lacking. Combining behavioural data on social interactions (4,000 hours of focal animal sampling) with measurements of GC and OT levels (900 urine samples) from 14 adult male Barbary macaques from a semi-free ranging population, we first test whether GC levels will be higher following stressful events (aggression received) compared to a period without social interactions (baseline). We then test whether individuals that groom with a bonded partner within 15 min after a stressful event show decreased GC levels and increased OT levels compared to individuals that did not engage in such an affiliative interaction. Our results will inform us about the effect of affiliative behaviours with bonded social partners following stressful events, and the physiological mechanisms by which they help to regulate HPA axis activity under natural conditions.

## **WHEN AND HOW DO CHILDREN LEARN FROM UNRELIABLE INFORMANTS?**

*Benjamin Schmid, Nivedita Mani and Tanya Behne*

Preschoolers selectively learn from previously reliable over unreliable informants (Koenig & Harris, 2005), and even toddlers learn more when information is provided by a reliable speaker (Koenig & Woodward, 2010). While the phenomenon is well documented, less is known about its cognitive underpinnings. How do children treat information from an unreliable informant? Do they generally encode information from reliable and unreliable sources differently? Are differences in learning from reliable and unreliable speakers influenced by the extent to which these speakers cohere or contradict each other? To investigate selective learning strategies in 5-year-olds, we are combining eye-tracking and behavioral measures. Over the course of several experiments, we examine situations in which previously reliable and unreliable informants offer contradictory information, i.e. different novel labels for different unfamiliar objects (Study 1), replicating the paradigm most commonly used (e.g. Birch, Vauthier & Bloom 2008), or compatible information, i.e. the same novel label for different objects (Study 2). We find that while children expect the label used by both informants in Study 1 to refer to the object labelled by the reliable informant rather than the object labelled by unreliable, they learn from both informants when they offered compatible information in Study 2. These findings suggest that rather than systematically blocking information from an unreliable speaker or refraining from semantic encoding, 5-year-olds show default trust in previously unreliable informants unless they have to choose between directly contradictory information from differently reliable informants.

## **PREEMPTION IN SINGULAR CAUSATION JUDGMENTS: A COMPUTATIONAL MODEL**

*Simon Stephan and Michael R. Waldmann*

Causal queries about singular cases are ubiquitous, yet the question of how we assess whether a particular outcome was actually caused by a specific potential cause turns out to be difficult to answer. Relying on the causal power framework (Cheng, 1997), Cheng and Novick (2005) proposed a model of causal attribution intended to help answering this question. We challenge this model, both conceptually and empirically. We argue that the central problem of this model is that it treats causal powers that are probabilistically sufficient to generate the effect on a particular occasion as actual causes of the effect, and thus neglects that sufficient causal powers can be *preempted* in their efficacy. Also, the model does not take into account that reasoners incorporate uncertainty about the underlying general causal structure and strength of causes when making causal inferences. We propose a new measure of causal attribution and embed it into our structure induction model of singular causation (SISC). Two experiments support the model.